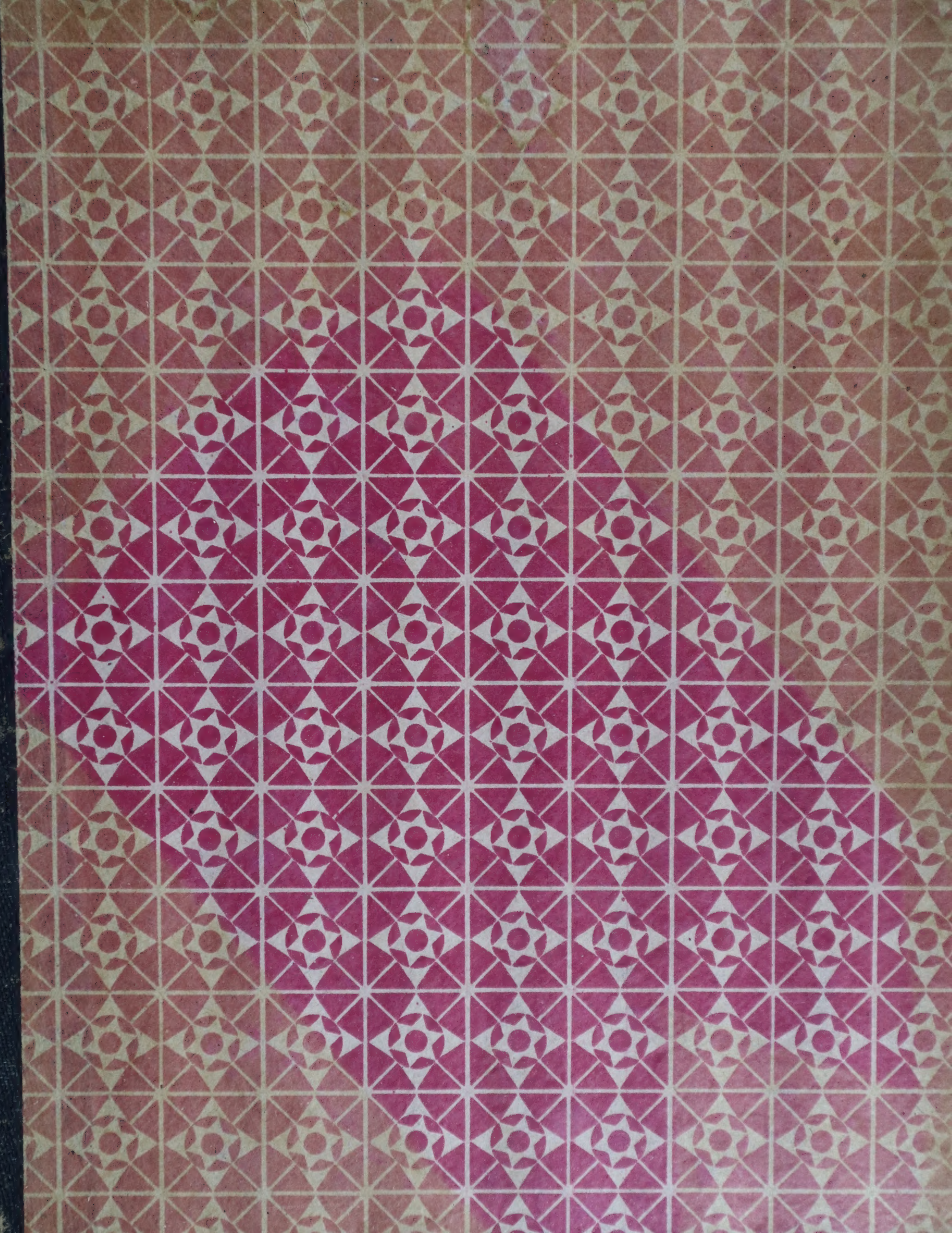

University News

MONDAY, JANUARY 11, 1988 Rs. 1.50

MOTWANE CHICAGO

Professor Yash Pal, Chairman, University Grants Commission, delivering the convocation address at the S.N.D.T. Women's University. Seated on his right are Justice Chittatosh Mookerji, Governor of Maharashtra and Smt. Kamalini Bhansali, Vice-Chancellor of the University.

G. B. Pant University of Agriculture & Technology

PANTNAGAR-263145, U. P.

ADMISSION NOTICE

A competitive entrance examination for selection of candidates for admission to the First Year of the following Academic Programmes will be held on Sunday the 1st May 1988, from 10 a.m. at Agra, Allahabad, Delhi, Hyderabad, Lucknow, Roorkee, Varanasi, Kanpur and Patnagar Centres.

A—Bachelor's Degree Programme		**Minimum Eligibility Qualifications**	**Age**
1.	B.Sc. Ag. and A.H.	Intermediate Agriculture/Science (Biology or Maths) from U.P. Board, Allahabad, or equivalent examination.	22 years on 30.11.88
2.	B.Sc. (Forestry)		
3.	Bachelor of Fisheries Sc.		
4.	B.V.Sc. and A.H.	Intermediate Agriculture/Science with Biology from U.P. Board, or equivalent examination.	(3 years relaxation for SC/ST/BC candidates only)
5.	B.Sc. Home Science (for girls only)	Intermediate Science (Biology or Maths)/Agriculture from U.P. Board, or equivalent examination.	

Candidates appearing in the above Board's examination in 1988 are also eligible to appear in the entrance examination provided their results are positively declared by 5th July 1988, otherwise they will stand disqualified.

B—Master's Programmes in 44 Majors	**Minimum Eligibility Qualifications**
in the areas of : 1. Agriculture 2. Veterinary Sciences 3. Civil/Electrical/Mechanical/ Agricultural Engineering 4. Basic Sciences 5. Food Science, and 6. Home Science	Bachelor's degree in Agriculture/Veterinary Sciences/Civil, Electrical, Mechanical, Agricultural Engineering/Basic Sciences (Physics, Chemistry, Maths, Biology) Home Science, as the case may be with 55% marks in aggregate or an equivalent OGPA from a recognized University with not more than one third division at High School or Intermediate level.

C—Ph.D. Programmes in 29 Majors in	**Minimum Eligibility Qualifications**
the areas of : 1. Agricultural Sciences 2. Veterinary Sciences 3. Agricultural/Civil/Electrical/ Mechanical Engineering 4. Food Science, and 5. Basic Sciences.	Master's degree in Agriculture/Vety. Sciences/Agricultural. Civil, Electrical, Mechanical Engineering/Food Science/Basic Sciences, as the case may be, in First Division from a recognized University with at least second class in Bachelor's degree and not more than one third division at High School or Intermediate level.

For full details, the Information Brochure and Application Form, prescribed separately for Undergraduate, Master's and Ph.D. programmes, can be obtained by sending an 'ACCOUNT PAYEE' Bank Draft for Rs. 10/- in favour of G.B. Pant University of Agriculture & Technology, Pantnagar on State Bank of India. Pantnagar Branch (Code-1133) or United Commercial Bank, Pantnagar, with a self-addressed envelope of 10''x7'' size bearing postage stamps of Rs. 4.00 by Unregistered Parcel, or may be obtained on payment in cash at the Counters set up in the Admission Cell at Pantnagar.

Last Date and Examination Fees : 10th March 1988 with the prescribed Fee of Rs. 100.00 for Undergraduate Programmes, and Rs. 100.00/120.00 (as the case may be) for P.G. Programmes. Applications delivered after 10th March, 1988 but not later than 25th March 1988 must be accompanied with an additional late fee of Rs. 50.00 for Pantnagar centre only.

O.S Misra
REGISTRAR

UNIVERSITY NEWS

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Editor :
SUTINDER SINGH

21 JAN 1988
C. F. T. R. I., MY

Health Sciences Universities And Pharmaceutical Education

Harkishan Singh*

In the United States of America during the nineteenth century there was evolved a system through the Morrill Acts of 1962 and 1890, to provide federal aid to certain institutions of higher education. Such institutions were called land-grant colleges or universities as the original law granted public lands to each state for the support of at least one college teaching such branches of learning as are related to agriculture and the mechanic arts. That is how the agricultural universities came up. With the passage of time as the agriculture changed from empiricism to highly developed science and technology, the colleges and universities which were primarily agricultural in scope got to have strong faculties in different of the other sciences. As of today such institutions in America are multi-disciplinary and they are hardly any way different from other universities.

After independence we belatedly borrowed the concept of agricultural universities. The G.B. Pant University of Agriculture and Technology at Pantnagar in Uttar Pradesh was the first to be established. Next, the Punjab Agricultural University, Ludhiana, came into existence. Now there are more than two dozen agricultural universities in our country. The divisions in a typical agricultural university are agriculture, agricultural engineering, veterinary sciences, home sciences, and basic sciences and humanities. As ours is largely an agricultural society, the slogan for having agricultural universities has gone well. As to what new ideas have been born at these universities and to what extent these institutions have been instrumental only in projecting the technologies developed elsewhere, it is for the agricultural scientists to debate. However, the fact remains that good talent in scientific disciplines other than agriculture is not attracted to these institutions and this is not in the interest of healthy development of agricultural sciences. In the future the so-called agricultural universities in our country may have to shape into multi-faculty universities.

Piqued by the establishment of agricultural universities, the proponents of medical sciences started toying with the idea of having separate health sciences universities. The medical lobby in our country is fairly strong and it is easier for them to reach and influence the high-ups than by other professionals. It may not be long that the move to have health sciences universities picks up. The beginning has already been made by the establishment of the first university of health sciences at Vijaywada in Andhra Pradesh. Such 'denominational' universities are again going to be ill-represented by the other scientific disciplines. Nowhere in the world health sciences universities exist.

**Professor, Faculty of Pharmaceutical Sciences, Panjab University, Chandigarh-160014.*

The health sciences universities as they get established in different states, will have all the medical colleges in the respective states and also the dental and nursing colleges affiliated to them. The pharmacy teaching institutions may also be made to come under the banner of these universities.

The move for creating health sciences universities has its ultimate aim to establish separate Medical and Health Education Commission on the lines of the University Grants Commission. The monolith which may thus come up will not augur well what to say for other allied professions but even for the medical education. The latter will get secluded and there will be insufficient interaction with other sciences.

We should also know about what is happening in Ayurvedic education. There too they want to be separate. There is already a Gujarat Ayurved University at Jamnagar and all the Ayurvedic Colleges in the state are affiliated to it. The doors for interaction between our old system of medicine and allopathy are being firmly closed. The modern science will remain bereft of the new developments which are possible using the Ayurveda as the base, and the Ayurveds will continue to be ignorant of the latest advancements.

The bandwagon of health sciences universities is likely to gain momentum. The establishment of Indian Institutes of Technology is the other argument which is given in its support. However, happily the IITs are very strong in scientific disciplines as well. Abroad, institutes of technology are not different from other universities. Excellence in pursuit of new knowledge is the hallmark of their operation. There are no artificial barriers. Think of Massachusetts Institute of *Technology* having a Nobel Laureate in *Medicine* as a faculty member. It is so.

The reasons for establishment of the All India Institute of Medical Sciences, the Postgraduate Institute of Medical Education and Research, and now the possibility of the National Institute of Pharmaceutical Education and Research coming up, are partly the same as for creating IITs. However, the complete divorce of medical education from other technologies, sciences and arts will come in the way of healthy growth of medical sciences in our country, and the national interests will suffer in the long run. Further, the allied fields like pharmaceutical sciences will also get a setback.

The pharmaceutical sciences, no doubt, are partly clinically oriented but as the pharmacy profession has shaped during the last four decades in our country, the degree and the postgraduate courses have got evolved more as technological subjects. Even the Diploma in Pharmacy courses now mostly form part of the polytechnic system of education. The diploma education is regulated by the Pharmacy Council of India. During the years the higher education and research in pharmaceutical sciences have gone along with Engineering and Technology under the All India Council for Technica Education. In the University Grants Commission, pharmaceutical education comes under the Technology Panel; a sister panel of the Engineering Panel. The All India Council for Technical Education is shortly to become a statutory body. The setting up of a separate All India Board of Undergraduate Pharmaceutical Education and All India Board of Postgraduate Studies and Research in Pharmaceutical Sciences under the AICTE is under consideration of the Ministry of Human Resource Development Government of India.

Having come that far in identifying with engineering and technology for very valid compulsions, should the pharmaceutical education now get sucked back into the health sciences and agree to become part of a system where scientific and its industrial orientation and the changed professional needs may not be appreciated? At the engineering and technology forums, pharmaceutical sciences stand on equal footing with other disciplines. The views of pharmaceutical educationists are listened with respect and regard. The patterns have been set for funding of graduate and postgraduate education. Pharmaceutical sciences now form an important and distinct component of engineering and technology.

The pharmacy profession should feel concerned with the coming up of the health sciences universities and possible institution of Medical Health Education Commission. The pros and cons should be carefully examined. The pharmaceutical education and sciences should not be taken unaware. A debate on the issue should be started so that we may evolve a consensus for the stand we may take. □

UNIVERSITIES AND LAW COURTS

C.F.T.R.I., MYSORE

T.K. Tope*

We are happy to announce the launching of this new column, "Universities in Law Courts". Universities have often figured in the courts and it is sheer quantum of the cases that has made the Law Commission toy with the idea of a Central Educational Tribunal. Whether this comes to pass or not is a different matter. The important thing is if there were keen awareness of the legal niceties and formalities, this in itself will cut down the number of cases taken to courts. It is to promote this basic legal literacy about educational matters that this column is being introduced. We hope our readers will like it.

I

Admission to professional colleges has proved to be a fruitful source of litigation. The Supreme Court was required to decide many cases of various types on this point.

The Tamil Nadu Health Department had reserved three seats for eminent sportsmen for admission to M.B.B.S. course. The order of preference was laid down : (1) participation at International level, (2) participation at National level, and (3) participation at State level. The rules, however, did not provide for determination of comparative eminence as between different candidates falling within the same class. The Supreme Court decided that the selection in such cases i.e. as between candidates falling within the same class is to be made on academic merit. For, the order of preference is merely a rule of exclusion. The Court observed :

> "In the absence of any guidelines for purposes of selection, the adjudging of comparative merits, among the eligible candidates falling under the category, eminent sportsmen would necessarily introduce......an element of subjectivity, which would introduce 'arbitrariness' in the selection of candidates because it would be left to the discretion of executive in making the choice. In the absence of any guidelines, there is nothing for selection committee to fall back upon except the marks obtained at the qualifying examination."

Khalid Hussain vs Commr. and Secretary, Govt. T.N. Health Dept., All India Reporter 1987 S.C p. 2074.

Note: The court decided the case as there were no guidelines to determine comparative merits as between two candidates belonging to the same category. It is to be noted that the guidelines, if any, must be objective, otherwise guidelines which are vague and not are purely objective would also be struck down by the court and the selection made on the strength of such guidelines would be bad.

Principles of Natural Justice

The management of a college of the Kanpur University suspended the Principal of the college. However, the order of suspension was stayed by the Vice-Chancellor of the Kanpur University. The Management thereafter held an *ex-parte* inquiry against the Principal and dismissed her from the service under statute 17.06 of the University. The Statute provides for the giving of an opportunity of being heard to the teacher concerned and prescribes a procedure for inquiry. However that was not followed. The order of dismissal was sent to the Vice-Chancellor who after hearing the parties disapproved of the order of dismissal and ordered reinstatement with permission to the Management to impose lesser punishment on the Principal, if deemed necessary. The Management allowed the Principal to function, but put various restraints on her in functionin as the Principal. The Principal moved the High Court against the order of the Management putting restrictions on her functioning. While the matter was pending in the High Court, the Vice-Chancellor reviewed the earlier order of disapproving the dismissal and passed an order approving the order of the management dismissing the Principal from service. The Principal moved the High Court against the order of dismissal. The High Court dismissed the petition on the ground that an alternate remedy i.e. an appeal to the Chancellor is provided in the Statute and the Principal did not resort to this remedy before filing a writ petition. As against this order of the High Court, the

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Former Member, Law Commission and Vice-Chancellor, University of Bombay (1971-77) [illegible] to the Supreme Court, the latter laid down following principles :

1. The Vice-Chancellor had no power to review the earlier order. "It is a fundamental principle of law that no quasi-judicial authority such as a tribunal or a Vice-Chancellor has power to review earlier order unless the power to review is specifically conferred on the authority." Courts are empowered to review because the power is conferred on the Court. Under the U.P. Universities Act there is no provision for review. Hence a Vice-Chancellor's second order approving the order of dismissal by the Management was an order issued without any authority and hence nullity.

2. Though an alternative remedy was available, the Court laid down that existence of an alternate remedy, is not an absolute bar to the maintainability of a writ petition. When an authority has acted wholly, without jurisdiction, the High Court should not refuse to exercise its jurisdiction under Art 226 on the ground of the existence of alternate remedy.

Note : The Supreme Court judgement does not deal with the violation of the principles of natural justice when the management conducted ex-parte inquiry. However, it must be noted that thought the Management has a right to suspend an employee, it is necessary that such suspension must be immediately followed by an inquiry. Such inquiry must be conducted according to the principles of natural justice. In brief the principles are :

1. The inquiry officer must be impartial, free from bias. He must not be a part of Management even in the remotest sense.

2. The person against whom the inquiry is being conducted must be informed of the charges against him.

3. The person must be given an opportunity to defend himself before the Inquiry Officer. If any action is to be taken by the Management on the report of the Inquiry Officer, the Management should send a copy of the report to the person concerned and also inform him the nature of action that is contemplated.

This procedure was not followed by the Management in this case. Hence the order of dismissal would have been illegal on this ground also. But that was not the point before the Supreme Court.

Note: It is rather strange to note that in this case, the Management was one of the Additional District Magistrates appointed by the Government as the Authorised Controller, under the University Act. In this case, the Supreme Court did not insist upon the resort to this alternate remedy, because the order of the Vice-Chancellor was without jurisdiction and hence a nullity.

Dr. (Smt.) Kuntesh vs Management H.K. Mahavidyalaya, Sitapur, All India Reporter, 1987, S.C.p. 2186

III

Responsibilities of the members of the Unfair Means Committee are explained by the Bombay High Court in *J. B. Parikh vs University of Bombay, AIR 1987 Bom. 332*. The Court also laid down that the Vice-Chancellor before passing an order prohibiting from appearing for examination until a particular date should have heard the aggrieved person. The court referred to following observation of the Supreme Court :

> "The principles of natural justice must be read into the unoccupied interstices of the statute unless there is a clear mandate to the contrary."

Note : With respect to His Lordship, it is submitted that the petitioner in this case had already an opportunity when he appeared before the Unfair Means Committee. Hence, it is rather doubtful whether a second opportunity is necessary. In this case, it was alleged that the behaviour of the members of the Unfair Means Committee was objectionable. Following observations of the Judge are noteworthy.

> "Here, the petition gives a detailed narration of the facts. If that account be true, the manner in which the two members of Inquiry Committee acted, could not have been bettered by the infamous Spanish Inquisition. They had before them a stripling of 17 summers and the petitioner was badgered as would be rodent by canines. As if this was not enough, his legitimate request for documents was not even replied to."

All concerned university authorities should note the above quoted observations for guidance.

IV

Unrecognised Educational Institutions

There has been a mushroom growth of unrecognised and unaffiliated educational institutions all over the country. Such institutions are established by vested interests having influence with the concerned State

Governments. Such institutions create problems for universities. Pressure is often brought on the University authorities to allow students from such institutions to appear for the examinations and to declare their results. The stock arguments in such cases are that the innocent students should not suffer because of mistakes of others. This argument is mischievous. The students are not innocent. Allowing such students to appear for the examination is to encourage fraud and corruption. University authorities must stand against such acts of fraud and corruption.

The Patna High Court decided a case of such educational institutions in *Amarendra Pratap Singh vs Lalit Narain Mithila University* (*All India Reporter 1987 Patna p. 259*).

The Full Bench of the High Court was called upon to decide the following question.

> "Can compassion for an unfortunate student of an unrecognised and unaffiliated educational institution, warrant a mandamus for the declaration of his examination result contrary to the statutory provisions or University Regulations."

The majority said 'No.'. The Court pointed out that 'fraud' vitiates everything.

Note: It is high time that Parliament passes legislation prohibiting starting of an educational institution without the prior permission of the University and any one doing so should be penalised. The punishment should be 10 years imprisonment (minimum) and confiscation of all the properties of all persons connected with the starting of such institutions. Unless such drastic steps are taken this fraud on education cannot be stopped and universities would not be free from political pressures.

It is suggested that Association of Indian Universities should prepare a draft Bill on this issue and forward it to the UGC for consideration and onward transmission to the Ministry of Human Resource Development. For, such a legislation is absolutely necessary, if Higher Education is to be saved from the greed of anti social elements.

V

In a very important judgment, the Supreme Court laid down the extent of the powers of the State legislature to legislate in the matter of higher education. The Andhra Pradesh Assembly passed Commissionerate of Higher Education Act with a view to providing for the constitution of a Commissionerate to advise the Government in matters relating to higher education in the State and to oversee its development with perspective planning etc. Section 11 of the Act contained *inter alia* the power of the Commissionerate to (1) monitor and evaluate the academic programmes in higher education and enforce accountability in the system; (2) establish and develop resource centre for curriculum materials and continuing education of teachers; (3) undertake examination reforms; (4) coordinate the academic activities of various institutions of higher education in the State, etc. Section 13 authorised the Commissionerate to inspect the standard of teaching, examination and research in the universities in the State, etc. This Act was challenged in the Andhra Pradesh High Court. A Full Bench of the High Court upheld the validity of the Act. As against the judgment of the High Court, Osmania University Teachers Association appealed to the Supreme Court. The Supreme Court struck down the entire Act, being beyond the competence of State Legislature. The judgment of the Supreme Court contains a comparative table of the contents of the UGC Act and the Andhra Pradesh Act.

The judgment of the Supreme Court is reported with All India Reporter 1987 SC 2034 and that of the Andhra Pradesh High Court at All India Reporter A.P., p. 214.

It is submitted that the judgment of the Supreme Court is based on the similarities between the UGC Act and the Andhra Act. But besides these similarities, there are certain provisions in the Andhra Act which, it is submitted, would not come under entry 66 of List I. Hence, it is recommended that the Andhra Legislature may pass another Act without any provisions that are likely to come under coordination and determination of excellence in standards of teaching and examination in the universities. It is further recommended that the Association of Indian Universities should arrange a workshop on this very important matter. It may be mentioned in this respect that scheme of new education policy envisages a statutory body in each State under the name State Council of Higher Education. Such a body is necessary if the limited resources available for higher education in each State are to be fruitfully utilized taking into consideration the needs of the State. If even State legislation concerning higher education is to be void because of entry 66 in List I, the accountability of the institutions of higher education to the community would not be possible. □

THE OLYMPIC MOVEMENT

B. S. Grewal*

"The modern Olympic Movement is one of the few truly heroic ventures of our times. It not only enjoys the participation and support of many famous names in many fields, but it also helps create new heroes by providing the motivation to strive for excellence and the opportunity to demonstrate that one has achieved it. It appeals to everyone, penetrating national, racial, and ideological barriers and involving as many countries as the United Nations. The Games have outlived their doubters and gained in popularity for almost a century now, proving that their revival is not just a passing fad.

This movement is heir to one world's oldest and longest-lasting traditions, for the ancient Olympics began before the Golden Age of Greece and continued for more than a millennium without interruption. The various legends about the origin of the Games cannot be substantiated; but it is certain that they were held at Olympia, near the north-western coast of the Peloponnesus, about eight centuries before Christ. The Games were run from early on jointly by Elis and Sparta, but eventually the Eleans had virtually complete control. They conducted the Games with stern fairness, and under them the Olympics gained greatly in importance. Competing just for the glory of achievement, winners came to be respected throughout the Western World. Even noblemen and royalty sought honors at Olympia, running side by side with commoners, all hoping to be awarded the coveted olive wreath. The Games reached their pinnacle during the fourth and fifth centuries B.C. by which time the simple competitions and rites had evolved into a seven-day celebration of great athletic and cultural accomplishments.

The facilities of ancient Olympia were more modest than those of today. The Stadium, where most of the contests were held, was about 190m long and 32m wide. Only judges, competitors, and others directly involved with the competitions were allowed inside the stadium; spectators, who may have numbered in the tens of thousands, vied for good vantage points on the hillsides all around. There were also a hippodrome for chariot races, buildings where the athletes could practice, treasure houses, and religious structures.

In those ancient days, contestants had to be Greek free men and were required to undergo long training. Even the judges were given special instruction for ten months before the Games.

At first there was only one event in the Games a footrace of less than 200 meters. Gradually more and more events were added until, by the 77th Olympiad, the Games took five days with an additional two for religious rites.

By the fourth century of our area, the influence of politicians and the self-seeking wealthy brought corruption to the Games and they were abolished by Theodosius I, emperor of Rome, in A.D. 394.

But the virtues and worthy ideals of the Olympics were not to be lost to us forever. When Pierre de Coubertin, in the latter part of the nineteenth century, sought a means to produce men who were more energetic, upright, and disciplined through pedagogy, he decided that sports were a force that could revitalize liberal education. This led him to the realization that a new understanding of amateurism was needed for the youth of different nations to compete equally in sporting events, and ultimately, to the idea of re-institution the Olympic Games. These modern games were to be true successors of the ancient Olympics, founded on high ideals and morals. To Coubertin owe the re-creation of Olympic philosophy that the practice of amateur sports can balance spiritual values and physical faculties and play an important part in the development of both the individual and humankind in general.

The historic Congress of Paris, held at the Sorbonne in 1894, was attended by 79 delegates representing 49 organizations in France, England, the United States, Greece, Russia, Sweden, Belgium, Italy, and Spain; Hungary, Germany, Bohemia, Holland and Australia sent proxies or letters. The congress was swept by the idea of re-establishing the Olympics and set up the International Olympic Committee. In spite of all the initial difficulties, the first modern Olympic Games were held in Athens in 1896, a landmark in modern history. There have been problems along the

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**Dean of Students-cum-CSO, Punjabi University, Patiala and Organising Secretary, 48th All India Inter-University Athletic Meet (M & W), Patiala, 10-14 January, 1988.*

way, but the genius of this movement spoke to the heart of modern man; and it has grown to become a powerful force for international understanding and friendship, contributing to harmony and progress that spills over beyond the bounds of amateur sport to benefit all the people of the world.

In London (1908), one of the outstanding developments of this meet was the tremendous improvement shown by all athletes in track and field events, new records deluging the scores. This lack of clearly defined and accepted rules in the various events, however, combined with the existing national hostilities, gave rise to friction among the athletes, resulting in orders to leave the field and in disqualification of the more hot-headed sportsmen. Halfway through the games, on a Sunday, the athletes were invited to St. Paul's Cathedral, where the Bishop of Pennsylvania made a statement which has become the tenet of the Olympics, "In an Olympic event the important thing is not to win, but to participate."

Baron de Coubertin who heard these words was so moved by them that he repeated the phrase at a dinner party given by the government at the end of the Games and he added—"The important thing in life, is not to succeed but to try hard." At the 1932 Olympic Games held in Los Angeles the words of the Bishop were proclaimed on posters in all the team dining halls as well as on the scoreboards, for all to see. The phrase has become the lasting motto of the Modern Olympics.

After a gap of sixty years, a fresh expression based upon the Indian way of life and Philosophy—to distil human strength into speed and skill and to elevate mankind's mind above the weakness of reward and recognition, is the sole purpose of sports was—submitted to the President, International Olympic Committee Lausanne (Switzerland). Mr. Avery Brundage, the then President of the International Olympic Committee, had communicated his comments which read as follows : "This is a very good brief expression of the Olympic philosophy. The 19th Olympiad Mexico, 1968 reproduced it on the title page of their publication No. 60 with a matching Greek mural 2000 years old, published in English, French and Spanish languages. Tehran-74 reproduced this eastern expression of the olympic philosophy in Persian and English languages. Montreal-76 again reproduced it in French and English languages. Delhi-82 Asiad Games published its Hindi translation.

In the course of time sports expressions have grown to be nine in number, the Patriot, New Delhi had published it in its issue dated June 28, 1987 under the heading of Navratnas of Sports which are reproduced as below :

1. Life is a cycle, cycle it as here.
2. Fearless feathered feet flee farther in the firmament.
3. The flame, the pigeons and the oath are the sparking symbols of sports to perpetuate its soulful message of peace and progress.
4. Let us enrich life with ethics, athletics and aesthetics.
5. War and peace are, as you take them Steel and Sports are, as you shape them.
6. Sports strengthen our bodies, socialize our habits, smarten our intellects, silken our minds and sublimate our lives by providing a symphony of smile, success and salvation.
7. We need a saint and a scientist to shape a sportsman.
8. The ultimate goal of sportsmen is to conquer the self.
9. To distil human strength into speed and skill and to elevate mankind's mind above the weakness of reward and recognition, is the sole purpose of sports.

UNIVERSITY OF DELHI
DEPARTMENT OF COMPUTER SCIENCE

ADMISSION NOTIFICATION FOR 'MASTER OF COMPUTER APPLICATIONS'—1988

Applications are invited, on all India basis, for admission to the 3-year Degree Course in Master of Computer Applications (MCA) for the session starting from July 11, 1988 in the Department.

A request for the Eligibility Conditions and the prescribed Application Form for the M.C.A. Admission Test, fixed for SUNDAY, FEBRUARY 21, 1988 and to be conducted only at the Delhi University, Delhi, be addressed to Shri K.S. Krishna, Senior Assistant (In-charge), Department of Computer Science (Room No. 303), Arts Faculty Extension Building, University of Delhi, Delhi-110007 alongwith a **Crossed Bank Draft for Rs. 7/-** payable at Delhi and made out in favour of **the Registrar, University of Delhi**. A request by mail should accompany a self-addressed and postage stamped (Rs. 2/20 p.) 10"x7" envelope.

LAST DATE FOR RECEIPT OF COMPLETED APPLICATIONS IS FRIDAY, FEBRUARY 05, 1988.

PROF. K.D. SHARMA
HEAD

The Situation Must Change

Hon'ble Smt. Kumudben Joshi, Governor of Andhra Pradesh and the Chancellor of the universities in Andhra Pradesh inaugurated the National Conference on Role of Universities in the Implementation of New Education Policy organised in conjunction with the 62nd Annual Meeting of the Association of Indian Universities at Osmania University, Hyderabad on 18 December 1987. In an all embracing Inaugural Address, Smt. Joshi gave the clarion call that "the situation must change". She said, "we can no longer afford to continue a degree oriented education system which prepares people for white collar jobs. The scientific and technological advances made by our Nation, and also the pace of growth and development call for a variety of new disciplines, and the young of this country have to be prepared for the kind of jobs they are required to handle." Excerpts :

When we talk of University Education, it has many national connotations and has to be understood in the wider perspective of a large country like ours, where we have got to rise above the narrow considerations of language, region and religion. What we require, is uniformity, and the whole system should reflect the spirit of unity in diversity. Therefore, we need a **national policy in respect of Higher Education imparted by the Universities**, unlike primary education, which has a regional bearing. It is for this reason that we should keep our universities free from external influences, political interferences and pressures so as to enable them to function as autonomous bodies to safeguard the national interests and not be subservient to narrow considerations. And again it is for this simple reason, that the Governors of the State are made the Chancellors of the universities to keep the high office at the helm of management above any controversy.

Every Governor is an **Umpire of goodwill and neutrality**; you cannot have Cricket **without an umpire, nor play the game without an impartial** observer. It has been my experience with the universities in the State, as Chancellor, that the Vice-Chancellors have been able to provide the required leadership and direction to the entire academic community. But sometimes I feel that the Vice-Chancellors are made to function only as **"glorified administrators"** and are compelled to live in ivory towers. How many of them have the opportunity to go to the affiliated colleges, as frequently as required, and how many of them have established a rapport with the teaching community, and interact with the teachers and students ? **Alas !** many of them are bogged down in their files and problems concerning the day to day administration. Therefore, it is time that we pulled out our Vice-Chancellors from their routine, and may be some of them need a better exposure ! The implementation of the New Education Policy presupposes such an exercise.

You are aware that higher education in our country, like in any other advanced country in the world, has a set of complex and multifarious functions to perform. Apart from being purely 'academic' in nature, it includes the social, economic, psychological, spiritual and moral aspects. Let me make it clear that we are not interested in the quantitative or even the horizontal growth of education. The time has come for us to look at the qualitative and vertical growth towards higher performance, contribution and excellence of education. In fact, the whole policy of education centres round the basic theme of "need-based education", keeping in view the requirements of the country; especially when the Nation is entering the 21st Century. Such an idea cannot, however, be taken as a figurative reference, but as something emotional, where we are concerned about the future of our Nation.

We have come a long way from the days of the colonial pre-Independence times when the system of our education was designed to meet the requirements of the then rulers of the country. It is equally true that in many respects, we continued those systems, and it is only very recently we realised that a change was needed to make education appropriate, and to be able to meet the challenges of a changing socio-economic order in the country. It is with this end in view, emphasis has been laid on greater opportunities for rural people, and other disadvantaged sections of the community and also women. This does not mean that just the expansion of colleges and institutions of higher learning, but a qualitative restructuring of the system itself to suit the needs and requirements of these neglected sections.

Universities today offer not only academic education, but provide opportunities to symbolise the socio-cultural milieu, the **"unity in diversity"— the basic characteristic of this Nation**. It is said that university campuses are increasingly in the news today, not only because of the problems of student unrest, or even drug abuse, the latest threat now invading our campuses; but also because of the crucial role played by them in the myriad aspects of our national life. Our universities do not constitute merely the tall structures and the sprawling campuses; but they symbolise the virtual abode of resourcefulness, and dynamism of the promising young men and women of the country. In fact they represent the basic foundations of life.

One of the fundamental objectives of education, as you all know, is to secure knowledge of the physical world and the social environment in which an individual lives. In other words, this is aimed at making the citizen contribute his mite to the society. Deprived of such knowledge, the growth of individual personality is always retarded, impeding the growth of the society as a whole. Therefore, in a democratic society like ours, education is the only means to overcome the social inhibitions, and enable one to confront the realities in our society today. Fortunately or unfortunately, the expansion of institutions of higher education gives the impression, that we have been able to bring these institutions to the people instead of taking people to to the institutions. With the result, we have today an alarming growth rate of unemployment as well as under-employment.

With the increasing number of graduates every year, it may be necessary for the universities to undertake a survey of the utility of higher education, to find out what has gone wrong with our systems.

The situation must change. We can no longer afford to continue a degree oriented education system which prepares people for white collar jobs. The scientific and technological advances made by our Nation, and also the pace of growth and development call for a variety of new disciplines, and the young of this country have to be prepared for the kind of jobs they are required to handle. We have always to keep in mind the long term as well as the immediate objectives and design or restructure our policies in such a fashion, that we make education an instrument of change in the strict sense.

Let me add that while we are all seized of these problems, equal attention has to be bestowed towards the realisation of the importance of our national values, and character building. There are two important aspects of education. One is the cultural, which helps individual grow from within; and the other, the production aspect, which makes the person productive by imparting the skills required as a means to livelihood. Let me point out here, that we have always viewed the "educatedness" of a person in a very narrow sense equating it with the earning of degrees. A degree which does not contribute to the enrichment of faculties, leading to find better solutions to the problems of life, can be of little use. In the broader sense, education should enable one to acquire the strengh to protect oneself against the many dark forces that surround an individual.

We have often blamed the youth, particularly the educated young men and women for being emotional and problematic. We find today that a section of this youth force suffers from frustration, and is unhappy under many strains and stresses. How are we going to meet this situation on our university campuses which breed the syndromes of unrest, and other maladies of indiscipline, erosion of human and moral values etc. ? The situation calls for a new thinking to bring life into the system, and to see that the stresses and strains are minimised. What we need today as Swamy Vivekananda has always emphasised is "*man-making education*". If we have to make a productive and qualitative citizen, education has to be made relevant to the existing situations and challenges, to be able to respond to the hopes and aspirations of our Nation.

It is all very well to ponder for a while on these idealistic and utopian ideas. But the question stares in our face, for a practical and pragmatic solution. This is where the universities have to design new ways and means to imbibe and inculcate the required discipline among the youth, to make them productive and a responsive youth for tomorrow. Thus you will see that universities have a great responsibility to shoulder. As you all know, any exercises of learning should be backed by certain values, and more particularly in the field of higher education it should be committed to these values.

Student unrest, fall in standards, indiscipline and apathy are no doubt some of the stumbling blocks to the progress of education which appear to be a universal phenomenon. These are however, not insurmountable, provided the universities stimulate and in spite the youth to react to the healthy climate created by them. It is the human element that plays a vital role in this regard. What is required is a whole-hearted involvement of the student community with a sense of commitment and belonging to the values, to make them more productive as also promoting in them a sense of ds-cipline and harmony. When we try to recollect the glory of that personal relationship between the Teacher and the Taught often mentioned in our ancient books, and "Shastras", perhaps what we are now aiming at today, is the expanded meaning and scope of this relationship that is relevant to the university Campus. This enjoins upon the students to respond to the call of right action, right thinking and greater dedication.

Needless to say for me, that the essential ingredients of a qualitative system of education comprise and comprehend high academic standards, and discipline. It should be dedicated to the purpose of education, as an "effective instrument" in making an "individual" out of a man or woman as the case may be. Naturally, this reminds me of the importance of women's education. During my tenure as Governor of the State and Chancellor of as many as 10 universities in this State, I have seen girls putting up the best of academic performance, and in almost every convocation, it has always been a matter of pleasure and pride for me to find young women bagging academic distinctions and awards more prominently. Given the opportunity it only shows, that **women are equally competent to draw the best of advantage from the academic exposure**. In fact, 50 percent of the population in our country comprises of women. Their enlightenment and the harnessing of the "**woman power**" is the best way to achieve human resource development; otherwise a large country like India is sure to miss the resourcefulness of half of its population. This is a very serious problem which will have serious repercussions on the socio-economic milieu of the Nation. Therefore, our universities must expand and extend equal educational opportunities to women and also given them the benefit of personality development.

Let us not forget that this is an important aspect of education which is capable of promoting human dignity character and integrity. What is more important is that, our educational institutions should stand aloft on the foundations of intellectual and academic excellence. To quote Dr. Radhakrishnan, "If the world happens to be in a precarious position.........and if people are afraid of one another it is not because of lack of material accumulations or great intellectual powers. It is because they are lacking in that poise, in that balance, in that judgement, which make them distinguish right from wrong. It is that capacity which constitutes the purpose of education." Equipped thus mentally, a student in a higher seat of learning acquires the power of discrimination between right and wrong enabling him not only to know how to earn a livelihood but how to live worthy of the human calling. Any policy on Education should reflect this spirit. And it is for the national academic-bodies like the Association of Indian Universities to give the lofty ideals a truthful expression and translate precept into practice.

In a particular, the Universities should always keep in mind the fact that if education has to be understood as preparation for life, it is necessary for the universities to emerge as poineering abodes where the human personality is shaped and moulded into responsive and responsible citizenry of tomorrow's world. ☐

Teacher Training Programme

As part of its programme for faculty development, Anna University introduced a teacher training programme for the benefit of BE/B. Tech degree holders belonging to SC and ST. The objective of the programme is to attract fresh and talented graduates belonging to SC/ST communities by providing adequate incentives to fill up the seats reserved at the entry level in the teaching profession. Under this scheme a new category of Teaching/Research Fellow has been introduced to assist the faculty in instruction, training and research. Selected trainees, are given training in pedagogy for a period of three years and also provided an opportunity to qualify for the Master's degree on a part time basis. A stipend of Rs. 1300/- per month is paid during training period. On successful completion of training, the trainees are appointed as lecturers in the University.

The scheme is useful in compensating the vacancy existing in the faculty at the middle and lower levels, especially in emerging areas where shortage of teachers exists throughout the country.

During the year 1987-88, 28 Teaching/Research Fellows and 5 Teacher Trainees have been recruited at the Anna University.

Convocation

The Rubic Cube Puzzle

Professor Yash Pal, Chairman, University Grants Commission, delivered the Convocation Address at Thirtyseventh Annual Convocation of SNDT Women's University, Bombay. In a scintillating address, he characterised our strait approach to disciplines confining them to cubby holes as an antithesis of the very concept of a University "where everything, in principle, exists simultaneously". While advocating interdisciplinarity, Professor Yash Pal advised graduands to not to confine themselves in life to their certified expertise but to 'jump out of it' to discover 'many flowers, many relationships'. Excerpts :

Let me share with you, in a few moments, why I think the scene in our country, in spite of all the cynicism, dust, din and the arguments which happen between teachers and UGC or between students and teachers, there is fantastic promise and fantastic richness in this country. I am surprised when I meet several young people to discover talent and richness which frankly did not exist in my day when I was a student. It is very commonplace these days for people of my age to talk about good old days when students and teachers were more serious and people were more hard working and intelligent. Well, maybe they had some characteristics which were different from those which are now available amongst people. But, there is no question that the variety of expertise and sometimes the depth and sometimes the breadth of it, which is available now in quantities was not available at that time.

Just a couple of days ago, in response to a letter from a friend, Shyam Benegal said would you agree to meet such and such young man who has got his Engineering Degree, but in the process has done a couple of things in Audio-Visuals which look very very striking ? UGC, contrary to what Madam Vice-Chancellor said and as the present Chairman of the UGC, likes to break rules and norms and so we are doing more and more things in the area of education in different ways and so this young man came, has a Bachelor of Technology in Aeronautical Engineering but had done some work and I immediately realised at least meeting him that here is a potential Film Maker of great sensitivity. You may say what do you mean by Film Maker ? Film Maker in the sense for Educational Films, but otherwise tremendous technical abilities and marvellous sensibilities so what do I do then ?

Now I come to the problem. His Degree is Engineering. Maybe he has another Diploma, consider this as an hypothetical person. He doesn't work in a University so my Charter doesn't allow me to support him anyway. Luckily when I asked him he said, "I do not want any support. I am not looking for a job. I want to wander around and get experience and some work". But supposing he wanted a position in a University or in one of our Programmes, I would have to find and manoeuvre and get him a job in the University or get him attached to it and it will have to advertise and all kind of things. But, probably by that time, the fellow will get tired and would leave. Incidentally, this person's genius and expertise, in a sense, is a non-certified expertise. You all got degrees, certificates and certified expertise and Madam Vice-Chancellor said that now you are launched on your career. Do not be launched like a rocket and do not do only what your certified expertise says, but it is quite possible that your genius is much more, much beyond that. As far as this person is concerned, his expertise is entirely in a different area. But, I think that the area enriches what he does, it lies some where else.

The problem is that in the process of certifying people, we categorise them and exclude them from certain institutions and jobs. Somehow the exclusion of people becomes a more important function than inclusion of people, between organisations, institutions and agencies. The mere business of identifying expertise of people in our society is turning out to be an exercise in making compartments and cubby holes in which we can put experts—red, green, blue balls—all separate from each other. They are marvellous people in their own rights and somehow the mixing of these to create a synthesis, is something against which we put too many hurdles. Many people fortutately can jump over these hurdles and that is what makes this country. Why should we put that many hurdles ? Why should we be so insecure in our little boxes that jumping in of somebody with a different colour into our box should threaten us ? It is very much true in our universities and departments, in some way, if it doesn't have an exact paper qualification which is written down as a condition for a job, we refuse to recognise him. While we all know that it is while jumping from one box to the other on the boundaries of the boxes, different disciplines and departments, that is where the real creativity lies. That is where new things come and inventions come and that is where one has to make a mark within the country and outside.

Sure, we have lot of problems in our country as the whole world has problems. But, I think in a sense, ours are of a different magnitude and different quality. And also I have ambitions for this country which are much bigger and different from those of other countries. Let them decide their ambitions; because, we have strengths in so many different areas. I do not want to see my county even if it could, to become another Japan or US or Germany, great as these countries are, because there are aspects, elements of personal fulfilment and norms of relationships amongst people in our society, which we have here and which we do not want to lose. So, we have to create not a pale copy of a presently advanced country, but we have to create something which is us, which is India and which is special and has all the technology, science and the feeling or identity of being here, or having been born here and being related to the warmth and the capacity to laugh, even if we are poor and caring, and it is difficult to describe. But most often we are engaged, scientists, technologists, administrators, managers, business people and even politicians in solving specific problems on one side little by little in our departments and also in universities and many a times we solve them.

But sometimes I wonder whether what we are trying to do is not like trying to solve the puzzle of a rubic cube which has six faces and the game is to turn around, so that each face has only one colour. Now you notice many a times that you turn it quickly and want to get one of the faces red, it is easy and you get it red. But all the other faces are so jumbled up that you cannot really work on them one by one. In fact, you make it very difficult to solve other ones. If you solve one very quickly, you have to find a solution not for six dimensional but multi-dimensional rubic cube in such a way that all the faces come right. Otherwise, while solving one problem we make it more difficult, in fact, impossible to solve the other. Where can this kind of insight occur, in which area, where can it happen in our country ? I think we have really not recognised that this kind of approach cannot occur in a scientific, space, engineering laboratory or social-science or management institute alone. The only place where everything in principle exists simultaneously is a "UNIVERSITY" — Technology, Science, Social Science, Music Languages, Philosophy and all the aspects—exist. The objective was, they exist together so that they influence each other and not just exist in separate compartments next to each other. We have allowed that to happen.

I think the University is a kind of environment where this synthesised inter-mixing occurs, where people should find ways of having the real solutions to our multi dimensional rubic cube. We may get it, but the colours may not be quite complete. But there should be the best of everything in an interacting way so that we really do something which is our own and find our solutions. That is the dream I would like to have for our Universities—being second-to-none, to no laboratories, to no other expertise in every way. It should be coupled to the society completely to the industry, economy, farmers and yet coupled in this multi-dimensional way and working in this way together in order to solve our problems and seek fulfilment so that the role of the University is far bigger. It has to be Central, not only to the building-up of this country, but also hopefully giving a new way to looking at ourselves in this difficult world. That is what I wish, the direction in which, Madam, your University would go and all the other Universities will go to seek individual fulfilment and progress for all the people around us.

Take your certified expertise, your certificates, plan your career, do whatever you think you are starting to do, do not waste it, plan it, make a roadway for yourself but do not feel that you have to stick to that roadway. Jump out of it. Look at the countryside around and the relations of what you are doing; you may end up in doing something. The world is much larger than your expertise. Use your expertise but do not be confined to it. When you go out of it, you will discover many flowers, many relationships. People are much bigger and have many more dimensions than the certification which you get from here. The certification says one thing that if you apply to do something really well, you can do it and many other things in combination. You will get real fulfilment and probably find achievements in areas which you have not even dreamt of. Don't throw away your expertise but mix it with others. That is the 'Future' I wish you. ☐

Solar Energy Convention

The eleventh national solar energy convention and the annual meeting of the Solar Energy Society of India was recently held at the IIT, Delhi. Mr. J.C. Kapur, President of the Society presided. Over 300 participants from R & D institutions, universities, industry, planning and governmental agencies, social welfare and extension agencies from many parts of India attended the convention. After 3 days of extensive discussions on various aspects of renewable energy sources on the theme, 'Energy Options in the Nineties' the following broad conclusions were reached:

(i) The society noted with satisfaction the all round progress and the growing levels of proficiency in technologies and equipments relating to new sources of energy. There was however an urgent need to develop a broad spectrum systems capabilities to meet the diverse energy needs of rural communities and a wide variety of remote applications and energy conservation programmes in industry.

(ii) Although there has been a satisfactory growth both in number and variety of installations yet achievement of full potential for growth cannot be realised unless the availability of critical equipments and technologies are increased substantially. This is of particular importance in high development potential areas such as photovoltaic materials, equipments accessories and systems. There are too many conceptual and consequently operative hurdles to its growth.

(iii) The large scale centralised energy and power projects have long gestation periods, heavy investment, and in the Indian context low operational efficiency. Shift to renewable energy sources would mean more rapid satisfaction of energy needs and higher return on investment.

(iv) One of India's major problem of reaching energy to the remote and backward rural communities cannot be approached without optimising the available renewable energy potential in the areas. Success of such an effort would have far reaching environmental and social implications. Economics of new sources of energy cannot be analysed, in terms of traditional attitudes to development.

(v) There is an urgent need to establish missing links in equipment and technologies in all sun-based energy sources. A three year mission oriented programme should be launched for completion before the end of 1990. Government agencies should undertake such an exercise with the co-operation of the Solar Energy Society, Research and development institutions and industries. This is one of the few vital areas in development where India has the largest market potential in the world and should aim for excellence and parity with the most advanced countries. This would call for all round strengthening of the infrastructural base of the renewable energy industry and research and development effort.

(vi) Without an integrated energy policy, including renewable sources and long term perspective planning, there is a danger of our increasing dependence on oil imports, aggregating damage to environment and major set back to our plans for self reliance before the 21st century and an accelerated, sustained development in all parts of India thereafter.

Renewable sources of energy offer the most potential, energy conservation and developmental options for the nineties.

Inadequate appreciation of the inevitability of the New Sources of Energy in India's future have been responsible for the slow growth of the industry and technology and inadequate political and financial resources for its development. This needs to be seriously reviewed and corrected.

NBE Announces 1988 Exams

The National Board of Examinations (NBE) established by the Ministry of Health and Family Welfare conducts postgraduate examinations in medical subjects. The examinations conducted by the Board aim at a level of postgraduate examinations comparable to that which is recognised internationally as a mark of professional excellence. The emphasis is on evaluating professional ability and practical application of sound theoretical knowledge in the practice of the speciality a candidate is certified in.

The Board conducts Primary and Final Examinations twice every year in February and August. Written examination is held simultaneously in about 20 Centres in India and 6 abroad on the first Monday and Tuesday of February and August of every year. Practical/clinical and viva-voce examinations are held for candidates qualifying in the final examinations. Candidates with approved postgraduate degrees are exempted from Primary Examinations.

The Board awards "Diplomate of National Board (Speciality)" on passing the examination. The Diplomate qualifications awarded by the Board in various disciplines have been recognised by the Government of India as equivalent to postgraduate qualifications and are included in the First Schedule of the Indian Medical Council Act. State and Union Territory Governments, and other recruiting agencies dealing with the medical profession, have been addressed by the Union Health Ministry to consider NBE qualifications at par with other postgraduate qualifications. Holders of NBE qualifications awarded after an examination are eligible to be considered for Specialists posts in any hospital other than a training/teaching institution. They will also be eligible for appointment to the post of Registrar/Tutors/Demonstrators, etc. in teaching Institutions which would be counted as research experience for other teaching posts.

Besides the Medical Council of India recognised institutions, the Board has recognised 80 non-teaching institutions/hospitals including 28 of the Armed Forces after due inspection as centres for training for the Diplomate qualifications of the Board.

Examinations are currently conducted in 39 Medical Specialities and Super Specialities.

The next Board examinations will be held in February 1988. Further enquiries may be addressed to the Assistant Registrar (Examinations), National Board of Examinations, NAMS Building, Ansari Nagar, New Delhi, enclosing a self addressed stamped envelope.

Orientation Programme for Principals

The Centre for Adult/Continuing Education of the Jiwaji University, Gwalior, recently conducted a 3-day orientation programme for college principals. Topics like participatory role of principals and involvement of resource persons from within and outside the university, college/community needs and area development approach programme through adult education, strategy for training programmes at grassroot level and management aspects of adult education programme of UGC were discussed. Role of social workers in adult education and the role of supervisors in its evaluation process were also taken up.

Shri A.K. Vijaya Vargiya, Excise Commission of the State, inaugurated the programme while Dr. S.C. Saxena, Dean of the Centre, presided.

Indo-Soviet Symposium on Organometallic Chemistry

The Department of Chemistry, University of Rajasthan, Jaipur proposes to organize the first Indo-Soviet Symposium on Organometallic Chemistry from March 7-11, 1988. Besides a dozen Soviet Prominent Organometallic Chemists, a number of distinguished scholars from India would be delivering the plenary lectures in the broad areas mutually agreed for discussions like (i) Novel Elemento-organic (organometallic) and Metallo-organic compounds (ii) Elemento-organic intermediates and reagents in organic and inorganic synthesis (iii) Elemento-organic polymers, and (iv) Bio-elemento-organic chemistry.

Further details may be obtained from Prof. R.C. Mehrotra, Department of Chemistry, University of Rajasthan, Jaipur 302004.

Guidance and Counselling Centre

The Rajendra Agricultural University, Pusa (Samastipur) has established a Centre for Guidance and Counselling for the students of the University in order to provide them information regarding job opportunities, vacancies abroad and international organisations, and the possibilities for getting scholarships and awards. It is also intended to enable the students to perform better in competitive tests at the state and national levels. The Centre started functioning from 3rd Dec., 1987, the Foundation Day of the University, it being the birthday of late Dr. Rajendra Prasad.

Computer Centre for St. Ann's College

The Osmania University is reported to have accorded permission to St. Ann's College for Women to establish the Computer Centre and to introduce the B. Sc. (Computer Science) course with a combination of mathematics and physics for girl students. This will be the second computer centre to be run by a private college.

The Centre is proposed to be equipped with a latest terminal system with five terminals and a facility to extend upto 40 terminals, as and when required. To be set up at a cost of about Rs. 3.5 lakh, the Centre would have the latest macro computer facility which provides multi-user and multi-tasking requirements.

habilitating and managing small reservoir-based irrigation systems in Tamil Nadu. The assistance will cover professional staff salaries, Office expenses, Consultants, Workshops and training, and Study tours.

The University will also receive a financial assistance of Rs. 24.50 lakhs from the UGC to strengthen research in superconductivity in the Department of Physics for a period of three years.

Soviet Youth Perform at Kashmir University

A Soviet Youth contingent participated in a cultural programme at University of Kashmir on November 27, 1987 as part of the celebrations of the Festival of USSR in India. The Soviet Youth led by Mr. S.M. Illushen were accorded traditional Kashmiri welcome. Prof. Mushirul Haq, Vice-Chancellor of the University of Kashmir referred to the richness of the culture of the two countries. The programme was jointly performed by Soviet and Kashmiri Youth. Cultural items presented during the show reflected different aspects of the cultures of Kashmir and the USSR. The programme concluded with the university Tarana.

The Soviet Youth also visited University Central Asian Museum. The artifices of the museum greatly impressed the guest team. The artifices of museum reflect the old cultural and trade relations of Kashmir with Soviet Central Asia. Scholars of the Centre for Central Asian Studies had interaction with the guests.

Vice-Chancellor Prof. Mushirul Haq who was 'At home' in honour of the guests, presented gifts to the visitors.

Project Assistance for Anna University

The Ford Foundation has agreed to make a grant of $ 230,000 to Anna University for an experiment in participative approaches to re-

News from Agril. Varsities

VETERINARIANS MEET

The 8th Annual Conference of Indian Association of Veterinary Microbiologists, Immunologists and Specialists in Infectious Diseases and the National Symposium on Mycoplasmosis, Molecular Biology, Vaccinology and Immunology was recently held at Haryana Agricultural University. Inaugurating the symposium, Dr. A.K. Chatterjee, Animal Husbandry Commissioner, Union Ministry of Agriculture urged the veterinary health specialists to develop the required diagnostic tools which was the prime demand for animal surveillance. He pleaded for quicker, efficient and reliable methods of diagnosis. He said that today with single test scientists could diagnose 3 or 4 diseases.

Emphasising the importance of quarantine, he said that the contagious Bovine Pleuro Pneumonia is spread in England, Africa and Asia by shipment. We need to protect our animals against exotic diseases which could be done by effective diagnostic tools.

Mr. Mahender Singh, Vice-Chancellor, HAU in his presidential address said that since animal husbandary forms an important component of our poverty alleviation programmes, the success of these activities taken up under IRDP, NRP and DRDA would depend on animal health assurance. As such, he called the veterinarians "Bhagya Vidhata" (dispenser of destiny) of the downtrodde . He urged upon the specialists to evolve a workable strategy and recommended the possible line of approach for control of important infections of livestock and poultry in the country. He said, 'in spite of the vastness of animal resources, we continued to be poor in productivity.'

Over 150 specialists in veterinary microbiology and immunology from all over the country participated in the three-day seminar.

New Rice Variety

A new rice variety IET 7564 has been found promising by NARP scientists, at Bihar Agricultural College, Sabour for direct seeding in summer in Diara Land. Rice cultivation in summer under transplanted condition is not catching up due to high cost on irrigation but this variety can be sown directly in the main field after rains in early May when land is vacant after the harvest of Rabi crops. This variety matures in 90 days and gives a yield of 2 ton/ha. It is semi-tall and suitable for low fertility conditions. It possesses drought tolerance and develops sufficient foliage to smother weeds.

Agricultural Electronic Equipment

The Kerala Agricultural University (KAU) has started preliminary works for establishing a pilot centre at Vellanikkara for popularising the use of Agricultural electronic equipment among the farmers at a cost of Rs. 50 lakhs. The scheme is fully financed by the Central Department of Electronics, New Delhi. Besides Uttar Pradesh, Kerala is the only state selected for implementing the scheme.

The pilot centre is sanctioned for a period of 5 years from 1987-88. The objective of the scheme is to help the farmers at all stages of cultivation right from seed to storage. Use of electronic equipment in the analysis of soil, milk, water and grain preservation will be popularised. As a part of the scheme, modern electronic equipment for measuring the presence of aflatoxins in cereals, seeds, edible oils and cattle feeds will be imported from United States. A mobile unit will also be established under the pilot centre for the benefit of farmers around Vellanikkara.

News from UGC

INSAT-1B Programme of UGC

Between 16th January to 30th January, 1988 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is of one hour duration every day from 12.45 p.m. to 1.45 p.m. (Repeated from 4 p.m. to 5 p.m.) and will be available on the TV Network throughout the country. For the viewers in Delhi and surrounding areas these programmes can be seen on the second channel.

16.1.88

"Simple Present Tense"
"Poet and His Poetry-I"
"Romeo & Juliet"

17.1.88

No Telecast

18.1.88

"Counters"
"Energy : Closing the Gap"
"Transit Theodolite"

19.1.88

No Telecast

20.1.88

"Betelvine Cultivation-II"
"Give Trees A Chance"

21.1.88

"Life in Ancient Egypt"
"Japanese Architecture : The Living Heritage"

22.1.88

No Telecast

23.1.88

"English as Another Tongue"
"Poet and His Poetry-II"
"Art of Metal"

24.1.88

No Telecast

25.1.88

No Telecast

26.1.88

No Telecast

27.1.88

"The Brain"
"Some Aspects of Cancer Research in India"
"Endoscopy : The Inner View"

28.1.88

"Geological Research in the Himalayas"
"Rivers and the Japanese People Japan"

29.1.88

"Journey Through the Solar System Jupiter : A Clearer Picture"
"Magnetic Confinement"

30.1.88

"Demonstration on Indian Music-I"
"Classics in Tune"
"University Roundup"

News from Abroad

Pakistan Makes Solar Car

Three students of Karachi's N.E.D. University of Engineering and Technology have produced a solar-powered car "Solar Samba". The single-seater, produced by the students as a study project, was recently sent to Australia where it competed remarkably in the Pentax World Solar Challenge against formidable competitors from the USA, Japan, Germany, Australia, Denmark and Switzerland.

The trio—Atique Shafaat, Sirajul Matin and Baqar Tirmizi, took about twelve months in designing and fabricating the car.

Solar Samba is made of fibreglass. The single-seater is a threewheeler with a three-speed gearbox. Weighing 640 pounds, it has a maximum speed of 40 kilometres per hour.

It has an overall length of 130 inches, a width of 75 inches and height of 52 inches. The ten solar panels installed on the top of the car are approximately 197 square inches in area. The ten solar panels of Samba convert sunlight into electrical energy and feed it to an energy reservoir provided in a battery fitted behind the single seat.

The energy received from the sunlight passes into an electronic control unit installed inside the car. The control unit continuously processes the energy which is either used to provide motive power or goes into storage, depending on whether the car is stationery or in motion. The unit also monitors the amount and distribution of incoming energy.

When the power requirement exceeds the quantity needed for the one horse-power D.C. motor and the available input, the control unit channels energy from storage to motor. This may happen during acceleration or ascent or when some kind of shadow falls over the solar panels blocking sunlight, as in a cloudy weather or during night. Similarly, when the load is light and a surplus energy is available, it goes into storage.

Solar Samba is largely an indigenous product. Except for the solar panels, which were imported from Australia, everything else that went into its making is locally-made. All other parts were fabricated locally in accordance with the specifications designed by the three students.

The Samba costs about 100,000 rupees to make. The cost of materials was around 80,000 rupees, more than half of it, about 59,500 rupees, going into the purchase of the imported solar panels.

Sports News

Varsities Teams for National Tournaments

Volleyball

Indian Universities Volleyball(M) Team for participation in the next Federation Cup Volleyball Tournament to be held at Dariba Mines (Udaipur) from February 2-9, 1988, will be selected at trials at Rajasthan University, Jaipur on January 15 & 16, 1988. 48 probables selected from Zonal Inter-University Volleyball Championships have been invited to participate in the trials. Selected members of the team will undergo training at Rajasthan University, under the supervision of Mr. B.K. Ojha, Volleyball Coach, till its participation in the Federation Cup.

Walk and Marathon

Athletes for participation in the next National Walk and Marathon Championship scheduled to be held in Delhi on February 27 & 28, 1988 will be selected on the basis of performance in the Inter-University Athletics Meet being organised at Punjabi University, Patiala from February 10-14, 1988.

Wrestling

Indian Universities Wrestling Team will participate in the Senior National Wrestling Championship to be organised at Calcutta from February 10-14, 1988. Best three wrestlers in each weight category of the last Inter-University Wrestling Championship are being invited to attend the Selection Trials at Banaras Hindu University, Varanasi on January 26 & 27, 1988. The selected wrestlers will be provided training at Varanasi under the supervision of wrestling coach of BHU.

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This book discusses features of social unrest in India such as, present-day unrest and widespread corruption among politicians and bureaucrats; the laws that are made to preserve minority groups, and how these laws are sometimes misused by higher castes, the bureaucracy and even the judiciary; how corruption has become so widespread in the country even among certain government servants.

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THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities.

HUMANITIES

Philosophy

1. Indu Kumari. *Vallabh Vedantaki tattvamimansa ka sameekshatmak adhyayan.* BHU. Dr. Trinath Sharma.

2. Jain, Deepaklata. *The concept of soul karma (Bondage) moksha in Shuddhadvaita and Jainism : A comparative study.* Sukhadia. Dr. (Mrs) Girja Vyas.

3. Prasad, Kavita. *Anupalabdhi : Ek sameekshatmak vishleshan.* Magadh.

4. Prem Lata. *Samkalin Bharatiya darshan mein manavvad.* Gorakhpur. Prof. (Mrs.) L. Saxena.

5. Sharma, Som Pal. *A study in the reconstruction of the value-system of existing Indian education.* Delhi.

6. Zaccheus, Dorothy. *Faith and reason in Paul Tillich.* Osmania.

Religion

1. Behal, Monisha Agarwal. *The Vaishnava Monasteries in Assam in relation to folk religion.* Gauhati. Dr. Praphulladatta Goswami.

2. Mehrotra, Anita. *The nature of ethical and spiritual life in Sikhism.* BHU. Dr. B.N. Singh.

3. Rajiv, Ram Subhag Singh. *Attitude towards meat eating in Buddhism from the beginning till the end of 8th century A.D.* Delhi.

Fine Arts

1. Sharma, Sheela. *Dakshini Rajasthan ke adivasiyon kee lok kala evam hasta kala ka adhyayan.* Sukhadia. Dr. S.K. Choyal.

Drawing & Painting

1. Bhatnagar, Rekha. *Folk paintings of Udaipur Region.* Rajasthan. Dr. C.S. Mehta.

2. Sharma, Ashwini Kumar. *Jaipur ke tithi-yukta laghu chitron ka vishleshanatmak adhyayan.* Rajasthan. Dr. R.K. Vashishtha.

Music

1. Pandey, Shanta. *Adhunik Hindustani gayaki ke vibhinn gharanon ka itihasik evam tulnatmak adhyayan.* Rajasthan. Dr. B.L. Sharma.

Dance

1. Banerjee, Usha Rani. *Braj ke rasiyon ka adhyayan.* BHU. Dr. Rangnayaki Ayyangar.

2. Tak. Maya Rani. *Bharatiya nritya kala ke pariprekshya mein katthak : Itihasik vikas kram.* Rajasthan. Dr. B.L. Sharma.

Language & Literature

English

1. Ashok Kumar. *Certain aspects of the form and functions of Hindi-English code-switching.* CIEFL. Dr. S.K. Verma.

2. Mishra, Kshamanidhi. *American Leftist Playwrights of the 1930's : A study of ideology and technique in the plays of Odets, Lawwon and Sherwood,* Rajasthan. Prof. R.N. Mookerjee.

3. Rama Devi, S. *Individual investment in meaning-making : A conceptualization in ESL curriculum design.* CIEFL. Dr. (Mrs.) Rama Mathew.

4. Sah, Bindeshwar Prasad. *English and Hindi problem plays : A comparative study of George Bernard Shaw and Lakshmi Narayayan Mishra.* Gauhati. Dr. B D. Singh.

5. Sandhya Devi. *The image of women in Victorian fiction with special reference to Dickens.* Gauhati. Dr. H.N. Gohain.

6. Sinha, Arvind. *The tragic vision of John Millington Synge.* BHU. Prof. G.B. Thampi.

German

1. Chhedi Singh. *Gerhart Hauptmann and Upendra Nath Ashk : Speziell in Bezug auf Einsam Menschen und "Kaid".* BHU. Dr. (Mrs.) V.K. Annakutty.

Russian

1. Tiwari, Vinoda Nand. *A contrastive morphological analysis of noun-phrases in Russian and Hindi.* BHU. Prof. S.S. Misra.

Sanskrit

1. Goswami, Satyam. *Mrichhkatikam ke patron ka manovishleshanatmak adhyayan.* Rajasthan. Dr. P.D. Sharma.

2. Gupta, Suresh Kumar. *Sanskrit-Vangmay mein Vashishth rishigan : Vyaktitva evam krititva.* Devi Ahilya. Dr. L.N. Shukla.

3. Mishra, Anju. *Adhyatm-Ramayan ka sahityik evam ayurvedik adhyayan.* BHU. Dr. L.D. Dwivedi.

4. Padey, Kashi Nath. *Paniniya Shiksha : Ek sameekshatmak adhyayan.* BHU. Dr. V.K. Varma.

5. Radha Rani. *Sanskrit Bhan-Prahasan sahitya mein vyangya-vidha.* Rajasthan. Dr. G.C. Tyagi.

6. Sharma, Aruna. *Singhabhupal krit Rasarnavasudhakara ka sameekshatmak adhyayan.* Kurukshetra.

7. Sharma, Madan Lal. *Vrihattrayi : Samajik evam sanskritik paryavekshan.* Rajasthan. Dr. Vishwanath Sharma.

8. Som Dev. *Vaidik samhita-path evam pad-pathon ka vishleshan evam mulyankan.* Rajasthan. Dr. A.D. Sharma.

9. Suchitra. *Sanskrit sahitya shastra mein kavi aur kavi shiksha.* Kurukshetra.

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Punjabi

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3. Surinder Kaur. *Bhai Vir Singh, Puran Singh te Mohan Singh dee kavita vich sanchar vidhiyan.* Delhi.

Hindi

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7. Gupta, Aruna. *Chhathe dashak kee Hindi kahani mein jeewan mulyon kee avadharna.* Delhi.

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Urdu

1. Syed Ali Karim. *Urdu mein Afsanvi Abab kee tauqeed.* Delhi.

Bengali

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Telugu

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Geography

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2. Das Chowdhury, Jyotirmoy. *Politico-historical perspective of Narth-East India : A study in political geography with special reference to twentieth century.* Gauhati. Dr. M. Borthakur.

3. Dhian Kaur. *Changes in agricultural land use in the Bist Doab, 1951-80 : A spatial analysis.* Panjab.

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8. Vishwakarma, Jeetan Prasad. *Cultural geography of Bundelkhand Region, U.P.* Bundelkhand. Dr. R.S. Tripathi.

9. Yadav, Shri Durga. *Quantitative analysis of land forms and its application to the economic and cultural land-scape of Magadh Division, Bihar.* Magadh.

History

1. Agnihotri, Indu. *Agrarian change in the Canal Colonies, Panjab, 1890-1935.* JNU. Prof. S. Bhattacharya.

2. Das, Amal. *Some aspects of municipal and labour politics in an industrial area Howrah, 1870-1928.* Calcutta.

3. Jain, Rajula. *A critical study of Sardar Vallabh Bhai Patel's role in organising the Indian National Congress, 1934-39.* Rajasthan. Prof. M.S. Jain.

4. Kaushik, Neelam. *Mewar ke Chundawat thikanon ka itihas, 1710-1818.* Sukhadia. Dr. K S. Gudta.

5. Mishra, Anil Kumar. *Hindu Mahasabha : Ek rajnaitik dal ke itihas ka adhyayan, 1909-1947.* Gorakhpur. Dr. R.C. Roy.

6. Nakazato, Nariaki. *Agrarian structure in the Dacca Division of Eastern Bengal, 1870-1905.* Calcutta.

7. Rajiv Lochan. *The communal social process with special reference to Maulana Mohammed Ali and Mahatma Gandhi, 1910s and 1920s.* JNU. Prof. Satish Saberwal.

8. Sharma, Aditya Shankar. *Suba of Malwa under the Great Mughals, 1528-1707 A.D.* Rajasthan. Prof. G.N. Sharma.

9. Shikaripur, Narayanrao. Raghunath. *The Late Harappans and the Chalcolithic Cultures of the Deccan : A critical reappraisal.* Karnatak. Dr. A Sundara.

10. Singh, Amita. *The socio-economic history of Banda during British Rule, 1857-1947.* Bundelkhand. Dr. S.P. Pathak.

11. Singh, Shakti Pratap. *History of Banaras State from Mansaram Singh 1730 to the merger of the state with the Union of India, 1949.* BHU. Prof. B. Qanungo.

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ROHILKHAND UNIVERSITY

BAREILLY

Advt. No. 5/87 **Dated : 24-12-1987**

NOTIFICATION

Applications (in six copies) for the following posts are invited by **16th Feb., 1988** on prescribed form obtainable from the Registrar, Rohilkhand University, Bareilly 243001 (U.P.) by sending a self addressed envelope of 9" x 6" size and crossed Postal Order/Bank Draft for Rs. 25/- payable to the Finance Officer, Rohilkhand University, Bareilly. Money orders are not acceptable.

TEACHING POSTS

Sl. No.	Department	Faculty	Description of the Post
1.	Animal Science	Life Science	Professor One (Permanent) Reader One (Permanent)
2.	Plant Science	Life Science	Reader One (Permanent)
3.	Regional & Applied Economics	Arts	Reader Two (Permanent)
4.	Law	Law	Professor One (Likely to be made permanent)
5.	Education	Education	Professor One (Likely to be made permanent)

Qualification and Pay Scales

1. For the Post of Professors (Rs. 1500-2500 Under Revision)

Either Eminent Scholar with published work of high quality and active engagement in research and Ten Years experience of teaching or Research and experience of guiding research of doctorate level.

OR

Outstanding scholarship with established reputation for significant contribution to knowledge.

2. For the Post of Readers (Rs. 1200-1900 Under Revision)

(i) Good academic record with a doctorate degree or equivalent published work and active engagement in research or innovation in Teaching methods or production of teaching materials, and

(ii) Five Years experience of teaching or research including at least Three Years as Lecturers or in equivalent position. Further details regarding qualifications, service terms and permissible relaxations in qualifications will be provided with application form. Preference will be given to SC/ST and disabled candidates if otherwise considered suitable by the Selection Committee. Application form will not be sent by post after 16-2-1988. Applications on plain papers and received after due date are not acceptable.

B.S. Gupta
REGISTRAR

SUKHADIA UNIVERSITY

UDAIPUR

Advertisement No. 7/87

Dated : 21.12.1987

Applications are invited on prescribed application form for the following posts on regular basis in the University. The application form and **Full details about Qualifications as prescribed by the University etc. can be obtained from Shri A.L. Sahlot, Deputy Registrar (Recruitment), University Administrative Office, Sukhadia University, Udaipur Pin 313001, on Payment of Rs. 5/- through Crossed Indian Postal Order payable to the "Comptroller, Sukhadia University, Udaipur" alongwith a self-addressed envelope of 27 cms. x 12 cms. size bearing Postal Stamps of Rs. 2.20 only and send the application form duly completed in all respect on the same address upto 31st January, 1988.**

Those candidates who have already applied for the post of Lady Research Investigator (Population Research Centre) in response to advertisement No. 7/86 dt. 8-7-1986 need not to apply again, but they should please send their fresh Bio-data (one side typed) on plain paper to update the same.

Post in U.G.C. Pay Scale—1

I. Dy. Librarian : Pay Scale : Rs. 1200-50-1300-60-1900.

Posts in State Government Pay Scale

1. Assistant Engineer (Electronics)—2 Pay Scale : Rs. 1720-40-2000-50-2300-60-2600-75-3050-100-3350.

2. Technical Assistant (Electronics)-4 Pay Scale : Rs. 1490-30-1640-40-2000-50-2300-60-2600-75-3050.

3. Lady Research Investigator (Population Research Centre)—1 (Temporary, Pay Scale : Rs. 1160-20-1200-25-1400-30-1640-40-2000-50-2300-60-2360.

4. Research Associate : Physics — **1** Pay : Rs. 1500/- Fixed P.M. (Ad-hoc)

General Note

1. Number of posts may be **Increased or Decreased.**

2. Application forms received after the expiry of the last date may also be considered at the discretion of the Vice-Chancellor.

3. 16% posts would be reserved for Scheduled Caste and 12% for Scheduled Tribes, subject to general suitability.

4. A higher start in the grade may be considered for exceptionally qualified candidate.

5. The University Reserves the right not to bill up Post(s) advertised.

G.S. Sharma
REGISTRAR

RAJASTHAN AGRICULTURE UNIVERSITY

BIKANER

CAMP : UDAIPUR

Advertisement No. 2/87

Dated : December 28, 1987

Applications are invited on prescribed applications form for the following posts in Teaching/Research/Extension on regular basis in the University. The application form and **Full Details about Qualifications as prescribed by the University** etc. can be obtained from Shri P.P. Mathur, Deputy Registrar, University Camp Office, UDAIPUR Pin-313001 on Payment of Rs. 5/- through Crossed Indian Postal Order payable to the "Comptroller, Rajasthan Agriculture University, Camp Udaipur" alongwith a self-addressed envelope of 27 cms. x 12 cms. size bearing Postal Stamps of Rs. 2.20 only and send the application form duly completed in all respect on the same address upto **10 Feb., 1988.**

Those candidates who have already applied for these posts in response to previous advertisement No. 11/86 dated 27.12.86, 1/87 dated 29.1.87 and 3/87 dated 17.6.87 issued from Sukhadia University, Udaipur need not to apply again, but they should please send their fresh Bio-data (one side typed) on plain paper to update the same on the above address :

1. Professor : Pay Scale : Rs. 1500-60-1800-100-2000-125/2-2500.

1.	Plant Breeding & Genetics	2
2.	Live-stock Production Management	1
3.	Soil & Water Coservation Engineering	1

2. Associate Professor : Pay Scale: Rs. 1200-50-1300-60-1900.

1.	Agronomy	9
2.	Extension Education	6
3.	Entomology	1
4.	Bio-Chemistry	2
5.	Plant Physiology	1
6.	Nematology	1
7.	Horticulture	2
8.	Soil Science and Ag. Chemistry	1
9.	Plant Pathology	1
10.	Agro Forestry	2
11.	Vety. Pathology	1
12.	Soil & Water Conservation Engineering	2
13.	Electrical Engineering	1
14.	Mining Engineering	1

3. Assistant Professor : Pay Scale : Rs. 700-40-1100-50-1600.

1.	Agronomy	1
2.	Extension Education	5
3.	Plant Physiology	1
4.	Nematology	1
5.	Horticulture	2
6.	Bio-Chemistry	1
7.	Limnology & Fisheries	1
8.	Physics	1
9.	Agriculture Economics	4
10.	Agril. Statistics	2
11.	Soil Science & Ag. Chemistry	1
12	Plant Pathology	3
13.	Soil Conservation	1
14.	Clothing & Textile	1
15	Physiology & Bio-Chemistry	1
16.	Surgery & Radiology	1
17.	Obstetrics & Gynaecology	1
18.	Parasitology	1
19.	Anatomy	2
20.	Mechanical Engineering	3
21.	Electrical Engineering	1
22.	Mining Engineering	1
23.	Rural Sociology	1
24.	Civil Engineering	1
25.	Soil & Water Conservation Engineering	1
26.	Processing & Food Engineering	1

General Note :

1. Number of posts may be **Increased or Decreased.**
2. Application forms received after the expiry of the last date may also be considered at the discretion of the Vice-Chancellor.
3. 16% post would be reserved for Scheduled Caste and 12% for Scheduled Tribes, subject to general suitability.
4. A higher start in the grade may be considered for exceptionally qualified candidate.
5. The University Reserves the Right not to fill up Post(s) Advertised.

REGISTRAR

ANDHRA PRADESH AGRICULTURAL UNIVERSITY

ADMN. OFFICE : RAJENDRA NAGAR, HYDERABAD-30

Advt. No. 3/RC/87. **Dated : 31.12. 1987**

Applications are invited from eligible candidates for recruitment to the following posts in this University.

The last date for receipt of filled-in application is **1.2.1988.**

	Subject	Associate Professor Cadre Rs. 1200—1900 (Vth Plan U.G.C. Scale)	
	Faculty of Veterinary Science		
1.	Dairy Technology & Quality Control	1	
2.	Veterinaıy Medicine	2	
3.	Dairy Engineering	1	
4.	Anatomy	1	
5.	Animal Reproduction & Gynaecology	1	
6.	Dairy Science	1	
7.	Research Officer (Animal Husbandry)	1	
8.	Scientist (Animal Nutrition)	1	(Temporary but likely to continue)

The number of posts indicated above are tentative. Recruitment will be made against the number of vacancies available on the date of interview.

Reservation : Out of 9 posts the following posts are reserved.
S.C.—2 : S.T.—2 ; B.C. 'A'—1 ; B.C. 'C'—1; B.C. 'D'—1

Note : If a candidate belonging to the particular group of Backward Class for which the post is reserved is not available, candidates belonging to next group of B.C. in the rotation will be considered and if no suitable and qualified candidate is available in any of the four groups, the vacancy shall be filled under Open Competition.

Full details regarding the qualifications prescribed for various posts, conditions of recruitment etc., and the application forms can be had from the University on payment of Rs. 10/- in person or through a crossed Demand Draft drawn from any Nationalised Bank in favour of the Comptroller, A.P. Agricultural University, Rajendranagar, Hyderabad drawn on the State Bank of Hyderabad, Rajendranagar Branch. A self addressed and stamped cover of Rs. 2.50 may be sent. The cover containing the requisition must be superscribed "Requisition for application form" and addressed to the Registrar, Administrative Office, Andhra Pradesh Agril. University, Rajendranagar, Hyderabad-500030.

K M. Azam
REGISTRAR

GOA UNIVERSITY

BAMBOLIM, GOA-403 005

Dated 26th December, 1987.

Applications are invited for the following posts in the prescribed form (10 copies) together with the copies of the certificates and an application fee of Rs. 10.00 (Rs. 5.00 for candidates belonging to SC/ST) so as to reach the Registrar of the Goa University, P.O. Santa-Cruz, Bambolim, Goa, on or before the **29th February, 1988** from inland candidates and **15th March, 1988** from candidates abroad. The University reserves the right of accepting/rejecting applications received after the last date fixed for receipt of applications.

Prescribed forms of applications can be had in person free of charge from the Registrar's Office or on payment of Rs. 10.00 by cross D.D. drawn in favour of the Registrar, Goa University on State Bank of India, Panaji or Bambolim Branch, Goa, or by Indian Postal Order.

The minimum qualifications and the scale of pay will be as prescribed by the University Grants Commission from time to time. The posts also carry allowances as admissible to the State Government employees. A higher starting pay may be considered for the exceptionally qualified person.

Sr. No.	Name of the Post	Nos. of Posts
1.	Professor of Hindi	1*
2.	Professor of Marathi	1
3.	Professor of History	1
4.	Professor of Sociology	1
5.	Professor of Chemistry (Inorganic)	1
6.	Professor of Geology	1$
7.	Reader in English	1**
8.	Reader in Portuguese	1
9.	Reader in Philosophy	1
10.	Reader in Business Administration	1$
11.	Reader in Sociology	1
12.	Reader in Political Science	1
13.	Reader in Microbiology	1
14.	Reader in Mathematics	1
15.	Reader in Geology	1
16.	Reader in Marine Science	1
17.	Reader in Computer Science	1$
18.	Reader in Commerce	1
19.	Lecturer in Geology	1$$
20.	Lecturer in Konkani	1
21.	Lecturer in Konkani	1*
22.	Lecturer in Economics	1*
23.	Lecturer in Sociology	1
24.	Lecturer in Political Science	1*
25.	Lecturer in Physics	1
26.	Lecturer in Microbiology	1
27.	Lecturer in Mathematics	1
28.	Lecturer in Geology	1
29.	Lecturer in Marine Science	1**
30.	Lecturer in Commerce	1
31.	Lecturer in Business Administration	1$
32.	Lecturer in English	1

The additional qualifications prescribed for the following posts are as under :

1. **Reader in Portuguese** : Degree/Diploma in Romance Languages, Linguistics. Desirable to have a knowledge of Indo-Portuguese Literature.

2. **Reader in Sociology** : Specialisation in Cultural Studies and familiarity with contemporary anthropological theories.

3. **Lecturer in Sociology** : Adequate knowledge in the area of Social Psychology/Culture and Personality/Sociology of mass communication.

4. **Reader in Political Science** : Specialisation in Political Theory/Political Sociology.

5. **Lecturer in Political Science** : Specialisation in Government and Administration/International relations.

6. **Reader in Microbiology** : Specialisation in genetic engineering/biotechnology/enzyme technology.

7. **Lecturer in Microbiology** : Specialisation in Immunology/Virology.

8. **Reader/Lecturer in Mathematics**: Specialisation in Algebra/Numerical analysis/Mathematical Statistics/Theory of partial differential equations.

9. **Reader in Marine Science** : Specialisation in Physical/Chemical Oceanography.

10. **Lecturer in Marine Science** : Specialisation in Physical/Chemical Oceanography/Geophysics.

11. **Lecturer in Konkani** : Degree in Literature/Linguistics in Konkani/Marathi/Hindi/Sanskrit with excellent knowledge of Konkani Language and Literature. Knowing Devanagari and Roman/Kannada script.

12. **Lecturer in Physics** : Specialisation in Electronics/Materials Science.

* Post reserved for Schedule Caste.

** Reserved post being advertised for second time, only the Schedule Caste candidates may apply.

$ Reserved for Schedule Tribe.

$$ Reserved post being advertised for second time. Only the Schedule Tribe candidates may apply.

It may be noted that if suitable candidates under reserved category are not available the posts would be filled by candidates from general category on a temporary basis.

Dr. S.K. Gandhe
REGISTRAR

JAIN VISHVA BHARATI LADNUN

Deen Dayal Upadhaya Marg, 110002.

Applications are invited for the following posts in U.G.C. Scales and as per U.G.C. qualifications. Scholars of allied subjects may also apply.

(A) PROFESSORS

Sl. No.	Post	Department	No. of Posts
1.	Professor	Prakrit	One
2.	Professor	Jainology	One
3.	Professor	Life Science & Meditation	One
4.	Professor	Ahimsa-Peace Research	One

(B) POST-GRADUATE/RESEARCH STUDIES

Applications are also invited for admission to Post-Graduate classes and Research studies in all the above Departments. Stipend Rs. 500/- per month.

Applications to reach the Registrar, 210, Deen Dayal Upadhaya Marg, New Delhi, by **22-1-88**.

Professor M.R. Gupta
REGISTRAR

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davp 87/472

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D52

University News

MONDAY, JANUARY 18, 1988 Rs. 1.50

Hon'ble Shri Vasantdada Patil, former Governor of Rajasthan (second from right) was conferred a D. Litt Degree (*Honoris Causa*) of the University of Poona at its 77th Special Convocation. Others in the picture are (left to right) Shri M. Hidayatullah, former Vice-President and Chief Justice of India, Justice S.K. Desai & Dr. V.G. Bhide, Vice-Chancellor, University of Poona.

Combined Entrance Examination, 1988

Organised by Admission Committee, Kamla Nehru Institute of Technology SULTANPUR

The combined Entrance Examination (CEE) will be held from May 20, 1988 for admission to first year of B.E./B. Tech./B. Text/B. Arch/B. Tech. (Ag. Engg.)/B. Tech. (Chemical Technology) courses for academic year 1988-89 offered at the following Institutions :

1. College of Technology, G.B. Pant University of Agriculture and Technology, Pantnagar.
2. Government Central Textile Institute, Kanpur.
3. Government College of Architecture, Lucknow.
4. Harcourt Butler Technological Institute, Kanpur.
5. Institute of Engineering and Technology, Lucknow.
6. Kamla Nehru Institute of Technology, Sultanpur.
7. Madan Mohan Malviya Engineering College, Gorakhpur.
8. Motilal Nehru Regional Engineering College, Allahabad.
9. Other Regional Engineering Colleges (for U.P. seats only).

Age Limit

Upper age limit of 21/22 years as on 1.10.88 relaxable by two/three years for S.C./S.T. candidates depending upon the Institutions. Three is no age limits in some of Regional Engineering Colleges.

Minimum Qualifications

(a) For Four/Five Years B.E./B. Tech./B. Text/B. Arch. Courses :
Intermediate Examination with Physics, Chemistry and Mathematics of U.P. Board or equivalent.

(b) For Four Years B. Tech. (Ag. Engg.) Courses :
Intermediate Examination with Physics, Chemistry and Mathematics or Intermediate Agriculture Examination of U.P. Board or equivalent.

(c) For Three Years B. Tech. (Chemical Technology) Courses:
B.Sc. with Physics, Chemistry and Mathematics

Candidates appearing at the qualifying examination for admission are allowed to appear in the combined entrance examination provisionally. However, they must furnish their results before the date of interview failing which their candidature shall be cancelled. Candidates seeking admission to the three years degree course at HBTI only are required to furnish their result of B.Sc. Degree Examination by 31st August 1988.

Selection of Candidates on all India Basis

(a) All seats for three years degree course at HBTI, Kanpur

(b) 15% seats at G. B. Pant Agriculture University, Pantnagar.

Last Date for Receipt of Application

(i) Without late fee. :.........................**30.3.1988.**

(ii) With additional late fee of Rs. 150/- : **15.4.1988.**

Application forms with Information Brochure containing details of CEE, 1988 will be available from 1 Feb. 1988 from all the Institutions of U.P. mentioned above against cash payment of Rs. 15/- per form for four/five years and Rs. 16/- for the three years B.Tech. (Chemical Technology) courses. The forms can also be obtained by post from The Co-ordinator, Admission Committee, Kamla Nehru Institute of Technology, Sultanpur. PIN-228118 by sending crossed Bank Draft of requisite amount payable at any bank (PNB, SBI, BOB, CBI, Allahabad and Canara Bank) in Sultanpur (Avadh) in favour of Coordinator, Admission Committee, Kamla Nehru Institute of Technology, Sultanpur (U.P.) A self addressed slip of size 15 cm.X6 cm. with name and full address written in block letters should be sent along with the request for sending the form.

Co-ordinator
ADMISSION COMMITTEE

UNIVERSITY NEWS

VOL. XXVI JANUARY 18
No. 3 1988
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Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association.

Editor :
SUTINDER SINGH

... 1988
C. F. T. R. I., MY

Academic Staff College Programme
Some Experiences

B.K Passi* & P.K. Sahoo**

The Academic Staff College (ASC) Programme of Indore was formally inaugurated by Dr. S.M. Dasgupta, Vice-Chancellor, Devi Ahilya Vishwavidyalaya in the Department of Education on 2nd November, 1987. The objectives of the ASC are :

(i) to develop awareness among University/College teachers regarding the role of Higher Education in a changing social order;
(ii) to acquiant teachers with the principles and practices of pedagogy at Higher Education Stage;
(iii) to make the teachers self-sufficient in keeping themselves continuously abreast of the new knowledge in respective disciplines; and
(iv) to make the teachers aware of the means for development of their personality during teaching career.

In order to achieve the above objectives, the curriculum had four components viz.

(A) Awareness of linkages between Society, Environment, Development and Higher Education;
(B) Philosophy of Higher Education, Indian Education System and Pedagogy;
(C) Subject Upgradation; and
(D) Management and Personality Development.

Three components A, B, and D are covered in the first phase programme of 4 weeks' duration.

The first module programme of 4 weeks functioned during 2nd November to 28th November, 1987. In all 60 teachers belonging to institutions (University Departments and Colleges of Indore) participated in the programme. They belonged to as many as 22 different subjects (Commerce-13, Chemistry-5, Physics-3, Botany-4, Zoology-2, Geology-3, Statistics-2, Maths-1, English-4, Hindi-1, Marathi-1, Sociology-4, Psychology-3, Economics-4, History-2, Political Science-1, Geography-1, Philosophy-1, Home Science-1, Social Work-3, Music-1, and Drawing-1). In the initial stage 62 participants had registered. Their mean attendance was 22 days out of 24 days Programme.

Thirty resource persons, besides the Director and Co-ordinator of the ASC taught during the training programme. Five of them belonged to outside institutions viz; Kurukshetra, Baroda, Delhi and Bhopal. The rest of the resource persons belonged to University Departments, Colleges and other educational institutions of Indore. The resource persons were invited on the basis of their interest and knowledge of different subjects.

**Director, ASC, Indore, **Co-ordinator, ASC, University Department of Education, A-B Road, Indore.*

The Programme included theoretical as well as applied aspects of different topics belonging to A, B, and D Components. The topics covered under 'A' Components were egalitarian society, secularism, national integration, multilingualism and multiple culture, poverty and unemployment, rural development, urbanisation, environmental pollution, etc. The topics like Philosophy of higher education, learning processes, methods of teaching, techniques of teaching, material production, use of computer in higher education, educational system, management of universities and colleges, problems and issues of higher education, and economics of higher education were selected under Component 'B'. The Component 'D' included topics like communication theories, speech training, effective writing skills, how to run a club, youth and indiscipline, etc.

Presentations of 20 to30 minutes on each topic were followed by group discussions of around one hour. Necessary teaching aids like overhead projector, slides projector, video cassette recorder, and audio cassette players were used to make the presentation effective. Apart from classroom Lecture-cum-Discussion, practicals were organised for use of methods of teaching, preparation of self-learning materials, communication techniques, brain storming, administration of psychological tests, preparation of curriculum outline and test items etc. Necessary background materials and lecture notes were supplied to each participant. On selective topics assignments were given to them.

The course outlines prepared in the initial stage were modified to a certain extent during the 4 weeks' programme on the basis of feedback from the participants. Continuous efforts were made to get feedback from the participants through, informal and formal discussions with the participants and administration of weekly reaction scales. The participants' suggestions were sought for improvement of models of presentation and their participation in the same. For studying the overall effectiveness of the Programme, a questionnaire was administered to the participants at the end of the Programme.

With a view to evaluate the performance of participants, an assignment was given to each of them at the end of the Course. They were directed to submit the same within a week of complection of the Programme. The assignments will be graded; and pass certificate will be issued to the participants on the basis of their successful performance in the assignments.

It was observed that, the participants, in general, had appreciated the relevance of components 'B' and 'D'. Some of them did not perceive the direct relevance and immediate implication of component 'A'. All the participants were keen for the organisation of Component 'C' where they could have got opportunity to learn about current developments in their respective subjects and to link their learning experiences on principals and practices of pedagogy with them.

The participants felt that the duration should have been extended for a few more weeks for covering these three components viz. 'A', 'B', and 'D'. The organisers, also, realised the requirements of involvement of full 6 hours duration of every day for one month. Especially, a few topics like methods of teaching, preparation of instructional materials, use of teaching, evaluation techniques, curriculum development, use of computer in teaching could not be dealt with at intensive level because of the paucity of time. The participants demanded more details on these topics. As per their requests, the ASC is in the process of organising two more one week courses on "Computer Education" and "Psychological Testing" for more than 40 participants. They had expressed their likings for involvement of more number of outside resource persons in the Programme.

The participants appreciated the process of short presentation followed by longer discussions, small group discussions, practicals and use of sophisticated media like VCR. With regard to the need and mod of evaluation of participants during their participation in the Programme, they were equally divided. The participants willing for assessment insisted on certification and consideration of the same for their professional growth. In addition to the coverage of 4 Components, the participants, especially belonging to social science groups wanted training on general methodology of research for conducting their owe research work as well as guiding their master level, and doctoral level students.

The organisers and the resource persons observed the heterogenous background of the participants. The participants were least concerned with theoretical presentations. While a selective number of them participated very well in discussions, most of them acted as the silent spectators. The cyclostyled handouts and some reference material supplied to them remained almost unutilised. Further more, sustaining motivation of participants for daily programmes of around

(*Continued on page 8*)

UNIVERSITIES WITHOUT WALLS
The Case of India

B.L.Misra*

Mushroom growth of Universities and falling standards of education have rightly occupied the minds of many a people in India. But the right of education cannot be denied to anyone in a democratic country like ours. Rather, it is one of the core responsibilities of our government to provide sufficient and suitable educational facilities and create a climate for their proper use in terms of our constitutional mandate. Our Government has taken long strides in educational fields since independence and has made vigorous efforts to take it to the most distant parts of the country. Serving such a large country through institutionalised education was bound to have numerous educational institutions and in the process education was bound to suffer in terms of quality. But our Government has had a bigger and more meaningful objective and the needs of the masses in view.

India is today served by a wide network of a variety of educational institutions established by the Government and private organisations. A new phenomenon distinct from existing formal system of education has recently been added to it in the form of Open Universities (Universities without walls) for distance education with a different chunk of clientele and methodology in view. India have at present two such universities—(i) Andhra Pradesh (A.P.) Open University established by State Government of A.P., and (ii) Indira Gandhi National Open University (IGNOU)—a Central Government organisation. This paper intends to evaluate the case of Open Universities in India with special reference to IGNOU. The study is divided into four parts—(i) Genesis and growth; (ii) Objectives and Organisation; (iii) Operational Policies; and (iv) Observations and suggestions. It must be made clear at the outset that the study refers to higher education.

Rationale

At present there are a large number of colleges and universities in India for higher education. Statistically, the number of colleges and universities went up from 370 to 5246 and from 27 to 140 respectively and that of professional colleges from 208 to 727 during the period 1950-51 to 1983-84. The number of students enrolled for higher education increased from 5,56,000 in 1960-61 to 33,59,000 in 1983-84. Expenditure on education also increased gigantically, i.e, from about Rs. 100 crores in 1950-51 to over Rs. 5185 crores in 1982-83. But these data do not prove that the educational facilities in India are sufficient and available to all sections of society.

The existing formal/conventional system of education suffers from many drawbacks. It is elitist, traditional and expensive, and has pushed the society, bit by bit, to the brink of disintegration. Second set of its defects include the need for full-time teachers and classrooms, age limits and face to face teaching. By and large, the conventional system cannot take charge of all sections of the society due either to its own limited capacity or the students' inability to adjust to its constraints. Formal system is of no help particularly to those who cannot afford to be full time learners. The formal system, in fact, has lost its utility in modern times of advanced communication technology and more so due to its inability to carry out its much propagated objectives.

In these circumstances, the Open Universities may prove a boon. Colleges and universities remain closed for most part of the year for reasons not unknown and even during their working days, classes are not held regularly. Thus, the system requiring full time teaching as we have today, is wasteful.

Open universities propose to impart education to those who cannot afford full-time learning, through printed material, audio-visual aids, tutors and academic counsellors. Students enrolled with such universities will be free from various constraints which exist in formal system and will enjoy flexibilities of the new system.

However, the Open University system is not intended to compete with the existing formal system of education. Rather, it will supplement the formal system. The rationale for the creation of the Open Universities vis-a-vis the present system may be seen in the following points :

(1) The present system is unable to accommodate all sections of the society due to its limited capacities.

**Co-ordinator, Indira Gandhi National Open University Lucknow Study Centre, Jai Narain Degree College, Lucknow.*

(2) The existing system is not accessible to all sections of the society owing to their inabilities to meet its requirements such as costs and full time attendance.

(3) In the present day world, the formal system of education has lost its utility and is wasteful; classroom teaching and library facilities as available and utilised in this system fail to justify full time learning.

(4) The open universities can serve a large clientele with less hands and at lower costs.

(5) India is today equipped with sufficient communication technology for distance education, which the Open Universities propose to utilise, saving both the students and the Government different types of costs.

(6) The open university system will serve a different type of clientele which for social reasons, or otherwise, cannot join the formal system of education. For example, girls, housewives and employed and retired persons can benefit most from the open universities.

(7) There was need for such universities as could work with flexibility and openness in respect of courses. Correspondence institutes cannot assume this responsibility because they act as an adjunct to the conventional universities.

In view of the handicaps of the formal system of education, an alternative was found in the Open University system, which was well supported by the intention to use modern communication technology in education and also by the experience of other countries.

Historical Background

The idea of distance education was executed long back through correspondence courses. The importance of distance education may be visualised in the creation of the International Council for Distance Education, affiliated to UNESCO, by the correspondence institutes of different countries.

To reinforce the efforts for distance education, the first full-fledged Open University came into being in U.K. in 1969, the idea for which originated in 1959 when Harold Wilson, the then opposition leader in U.K. proposed a University of the Air. Later in 1964 when he became the Prime Minister, the idea was implemented through a Royal Charter. But "the University of South Africa can be considered as the forerunner of all distance teaching Universities." Over the passage of time, Pakistan, Sri Lanka, Thailand, West Germany, Israel, Japan, Venezuela, Spain and Canada have also established open universities.

Open Universities in India

The establishment of the Open University, U.K. impressed our policy makers. In 1970, a seminar co-sponsored by the Ministry of Information and Broadcasting was held under the aegis of Ministry of Education, Government of India, to consider the feasibility of creating an Open University in the country. The Seminar came out with positive findings.

In pursuance of the Seminar's recommendations, the Government of India constituted a eight member working group in 1971 under the chairmanship of Mr. G. Parthasarathy. The Group which submitted its report in 1975 reinforced the idea. Later in 1982, the committee to enquire into the working of Central Universities under the chairmanship of Dr. (Mrs.) Madhuri R. Shah forcefully recommended the establishment of a National Open University.

In the meantime, Government of Andhra Pradesh (A.P.) developed a proposal in 1978 to have an Open University in the State. In 1982, an expert committee under the Chairmanship of Professor G. Ram Reddy to prepare a project profile on the establishment of an Open University was constituted by the Government of A.P. through Government Order No. 494 dated 25th May, 1982. The committee submitted its report on 9th August, 1982 and the Andhra Pradesh Open University, the first in India, was established on 25th August, 1982 by an Act of the Andhra Pradesh State Legislature.

The idea of National Open University remained shelved for a long time. It was again taken up in January 1985 when the Prime Minister Shri Rajiv Gandhi in his first broadcast to the Nation, made a policy statement that included establishing a National Open University. Immediately after this, vigorous efforts were made and the Indira Gandhi National Open University was brought into being on 20th September, 1982 by an Act of Parliament.

Organisation and Objectives

Indira Gandhi National Open University (IGNOU) is the outcome of the new education policy which envisages dissemination of educational opportunities to all parts of the country with thrust on innovation, minimisation of cost, flexibility, learning-based-teaching, and, to cap it all, democratisation of education.

The organisation structure of the IGNOU has been so devised that it suits its needs. Its organisation structure is fairly comparable with that of other Central universities. Certain distinctive features have arisen as it has refrained from creating decorative and unuseful positions like Chancellor and Court, or opted for having new posts. The organisational committees of the University include the Board of Management, the Academic Council, the Planning Board, the Finance Committee and the Board of Recognition. The University proposes to have various schools instead of departments as in the traditional universities to undertake its academic activities. Each of the schools will be headed by a Director, not a Dean as in the conventional universities. The Board of Management is identical to the executive council in the traditional universities. The Officers of the University include the Vice-Chancellor, the Pro-Vice-Chancellors, the Directors, the Registrars and the Finance Officers. The University proposes to open its Regional Centres at least one in each State which will have a number of study centres under it. In fact, the Regional and Study Centres will be responsible of arranging for student support services.

Thus, IGNOU will function through its Regional and Study Centres. It has by now opened four Regional Centres, one each in Lucknow (Uttar Pradesh), Bhubaneswar (Orissa), Bhopal (Madhya Pradesh) and Hyderabad (Andhra Pradesh), and has made arrangements for establishment of its first study centres numbering about 46 all over India. In the absence of Regional Centres, the study centres will be controlled directly by the University Headquarters at Delhi. It may be mentioned that open universities abroad also function through regional and study centres or other similar establishments.

IGNOU is intended to take education to every corner of the country. Its jurisdiction extends to the entire country. Although all universities function as national organisations, their benefits are normally limited to their locational region. IGNOU proposes to approach students through Regional and Study Centres and thereby cover the entire country. Its objectives have been made clear in the IGNOU Act. The following extract from the Act seems pertinent.

> "The objects of the University shall be to advance and disseminate learning and knowledge by a diversity of means, including the use of any communication technology, to provide opportunities for higher education to a large segment of the population and to promote the educational well-being of the community generally, to encourage the Open University and distance education system in the educational pattern of the country and to coordinate and determine the standards in such system....

The objectives of the Indira Gandhi National Open University can be categorised as follows :

A. **Main Objectives**

(i) to take education to all corners of the country.

B. **Secondary Objectives**

(i) to make use of modern communication technology in distance education;

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(ii) to provide learning-based-teaching;

(iii) to cover housewives, employed and retired persons;

(iv) to ensure societal involvement in education.

Operational Policies

Indira Gandhi National Open University has nation-wide jurisdiction and is expected to attract learners from all corners of the country, unlike the conventional universities which fail to serve extensively. It is a common knowledge that the Open University, U.K. provided a model for promotion and creation of IGNOU. So far as the operational policies of the University are concerned, these have been planned and developed through marathon discussions and extensive surveys. No doubt, the working of the foreign Open Universities and A.P. Open University has been a constant source of confidence.

Regional Centres

Section 2(j) of the IGNOU Act defines the Regional Centre as below :

> "Regional Centre" means a centre established or maintained by the University for the purpose of coordinating and supervising the work of Study Centres in any region and performing such other functions as may be conferred on such centres by the Board of Management."

Thus, a regional centre headed by a Regional Director will be the branch office of University and it will be charged with the responsibility of managing the University's operations and supervising Study Centres in the allotted region. The University may have one regional Office in each State but some big states may have more than one and some small states may be allotted to one regional Centre all depending upon the response. As already noted. IGNOU has established 4 Regional Offices one each in Uttar Pradesh, Madhya Pradesh, Orissa and Andhra Pradesh. The Regional Centres will be equipped with teaching material on distance education.

Study Centres

Depending upon the strength of students and their dispersal various learning aids will be available at the study centres. Such centres will be responsible for providing student support services. Except printed study material which will be sent through mail directly to the student, all other learning facilities will be available at the study centres. These include.

(i) Library

(ii) Audio-Visual Aids

(iii) Tutorial and counselling facilities

(iv) Reception and information services

Study centres will be headed by a Coordinator who will work under the overall supervision of the head of the institution where it is located. The Coordinator shall coordinate the work of tutors/counsellors and act as a link between the University, Regional Centre and Study Centre. The University has by now opened 46 study centres all over India. Where there is no regional centre, study centre is expected to report to the University directly.

Magnitude of Operations

The University has launched two diploma courses from January 26, 1987—(i) Diploma in Management, and (ii) Diploma in Distance Education. To cope up with the requirements of Diploma in Management, the University has established 46 study centres all over the country and the needs of Diploma in Distance Education will be catered to centrally, i.e., by the University directly. It may be mentioned that admissions to these courses have been completed with a good response for the course in Management. Other courses like B. Com. and B.A. are being launched from January, 1988.

Conclusion

In order to strengthen the working of the IGNOU and to make it more effective, the following suggestions are offered.

(i) A proper liaison with the State Governments is necessary. It would be useful if the University authorities keep in touch with the State authorities and also hold regular meetings with them.

(ii) Many States have been toying with the idea of opening a State Open University. The IGNOU should act as a lead institution and the State Governments should first ascertain the need for state level open university in consultation with the IGNOU. The parameters like relationship between various State Open Universities and cooperation and collaboration between State Open Universities and the IGNOU should be given due consideration.

(iii) The University should make arrangements for aggressive publicity of its aims and objectives, the courses it starts, and eligibility criteria thereof.

(iv) A systematic growth rather than widening of commitments should be the aim. For this, proper infrastructural facilities should be ensured.

Indira Gandhi National Open University will go a long way in solving the problem of distance education. It will act as a catalytic agent for educational improvement in the country. To make it a grand success, the State Governments and, Private, Public and Social organisations should volunteer their support to the cause the IGNOU is avowed to serve. ☐

WOMEN'S STUDIES
Some Curricular Issues

Mira Ghosh* and Dr. K.K. Ghosh**

The University Grants Commission has just selected seven Indian Universities to introduce Women's Studies in their curricula to change society's attitudes, and values towards women's role and rights. Studies will have to be conducted in such fields as Women's contribution to social processes, women's perception of their own lives, the broader social reality, Women's stuggle and aspirations, Roots and structure of inequality, exclusion of women from the scope and approaches and conceptual framework. In this connection the Ford Foundation has offered US $ 100,000 as aid. The UNESCO is also being submitted a research project in this connection by S.N.D.T. Women's University, Bombay, who have also been entrusted to prepare a manual. The NCERT in New Delhi has also prepared an undergraduate course and produced text books.

To change Society's attitude towards women and project values towards Women's role and rights are subjects which can be introduced in curricula as compulsory reading for all—whether male or female—in undergraduate courses, where women's contribution to social processes and broader social reality can be highlighted. Such courses may include topics from history maybe, Women's role in the freedom struggle from the modern to the medieval and ancient world, Rajput Women's heroic struggle, Rani of Jhansi, Razia Begum. Comparative studies of the history of other countries like Joan of Arch in English history will also help. Not only in history but in supplementary reading, such feminist stories as 'You can't Kill the Spirit' by Jill Miller, 'Women & Revolution' might form good studies. In Psychology & Philosophy, such books as 'Regulation of Desire', 'Social and Sexual Revolution', 'Sex and Germs' (University of Toronto Press—Black Rose Publications) might form ideal books to be recommended. From other collections in fields of Science, may be quoted Jen Green's 'Despatches from the Frontiers of the Female Mind', 'Susan Griffin's 'Woman and Nature', 'You Can't Keep a Good Woman Down' (Women's Press, London).

When we come to Postgraduate Studies, the most important study would be in the field of Anthropology with such topics as causes of disorders in the social and emotional pressures which pursue women from birth and the needs they are taught to deny; Woman's struggle for dignity against a background of urban racism; how does religion relate to women's struggle for social change and such other topics. Sex and Love, Love and Friendship, Woman as a Child-birth Machine, Feminist Aesthetics, Pornography and Possessing Women, the Dialectic of Sex, Sexual Violence and similar subjects may form studies in Sociology. In Politics and History of course, there is abundant scope for research in the evolution of roots of inequality, Women's struggle as well as Women's contribution to social processes.

No doubt introducing these aspects of Women's Studies for undergraduate and postgraduate curricula for both men and women might well help in changing society's attitudes and value towards women's role, but will these studies help in achieving the aspirations of women, remove the inequality in society and assist in non-exclusion of women from the scope ? Unless women can understand their own importance in the broader social reality and make them important and useful with sufficient perception of their own lives, the inequality will never go and naturally they will be excluded from the scope.

In other words, to prevent women to be excluded from scope, make them important and useful, also to imbibe strength in their own selves, what is needed is to give them such type of education that they might feel economically strong not to depend on the menfolk, achieve their own aspirations without the help of their male counterpart or partner and can stand in the struggle against inequality, exclusion from scope and resist physically and mentally, any upsurge against feminism. By imparting such an education or training it does not mean preparation for "battling to improve Women's status" by making crowded processions and uttering cruel slogans against men rending the atmosphere, but an education for "preparation of complete living". For this are required to prepare well-designed curricula which may discipline the women to be loved and respected in society and they in their turn, might feel strong enough to withstand the stress of "exclusion" and "inequality".

As the flower is to the plant community, so women are to the animal species the most pretty and beauti-

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**Editor, Indian Women & Home*

***Chairman, Indian National Committee of World University.*

ful of the creatures in living nature. Rudeness, roughness and indiscipline on the part of women—even falsehood and immorality—are disqualifications on the part of women. Therefore discipline should be the motto in all female education, to make them really lovable to all in society. On the one hand therefore, the curricula should include beauty culture from the beginning of education, on the other hand discipline in all spheres, in drills, in music, in dance and in classroom. And a disciplined mother will ultimately fit into prepare a disciplined child.

Whereas therefore, beauty culture, dance, music and good behaviour should form the curricular studies, alongwith training in domestic chores like cookery, sewing, home management and so on, to change the broader social reality, women should be given sufficient physical education so as to be able to resist with force any kind of violence. Here softness will not pay. In this context, Sports and Physical Education should form a compulsory curriculum.

Talking of aspirations and economic independence, from the very start, there should be vocational courses as many as can be opened to welcome women candidates. Some of the vocations like typing, stenography, nursing, hospital and hotel management, catering, passenger relations (P.R.O. HOSTESS and such other jobs) should have scrupulous reservation for women in as much as driving, masonry, engineering for men. In all these fields and also in fields where day to day services are required like those of sanitarymen, electricians, dressmakers and so on, women should be given proper education. It is only by giving the maximum vocational and technical training with the Government making cent per cent reservation to positions where women might most fit in, that Society's attitude towards women and value towards women's role and rights can be changed, so that a feeble family partner or a humbug housewife might not detract the sweet perceptions that women might have of their own lives and aspirations. Here educators have as much to contribute by preparing the right types of curricula from the grassroot level as the State to co-ordinate. □

Academic Staff College Programme

(*Continued from page 2*)

4 hours was the major concern of the organisers. As per the participants enthusiasm, two short form get togethers and one cultural programme was organised. These brought a lot of freshness among participants during the Programme. The organisers were overloaded with answering daily queries of the participants. Every care was taken during the Programme, for informal dialogues between the participants and resource persons on academic matters.

On the basis of first round experiences it is felt that the ideal group size of each course should be around thirty. Supply of relevant books and self learning packages to all participants should be encouraged. Educational films in VCR form could have been used to a large extent. Several organisational problems with regard to accommodation of participants, finance, correspondence etc., can be solved smoothly provided a full-time administrative Officer is appointed for the ASC.

Moreover, library facilities for the full working days must be provided to the participants. Keeping in view the above experiences the ASC, Indore will work out a plan of organising the future programmes. Necessary datas are being collected from around 160 institutions of Madhya Pradesh which fall under the jurisdiction of ASC, Indore. □

Population, Education & Unemployment

Hon'ble M. Hidayatullah, Former Vice-President and Chief Justice of India, delivered the Convocation Address at the 77th Special Convocation of the University of Poona. While dwelling upon some of the crucial issues facing education today, Shri Hidayatullah pleaded for delinking degrees from jobs and strengthening of vocational and technical education to meet the challenges of growing population and unemployment. He said "to put a premium on degrees makes a student lose many years of useful employment and much expenditure on the part of parents who give support to him to go through a university curriculum". Excerpts :

The problem of education in our country is unique. The real core of the problem is our population and its growth. Not only our population explosion the root cause of our poverty, it is the cause of all our other ills. Recently, extracts from a paper published by the Population Crisis Committee of Washington has given the figures. Our population stands today at the staggering figure of 785 million people and is growing at 2.3 per cent per annum which means that by turn of this century, we will have added 232 million people. The world population is expected to cross 8 billion by the year 2022 and by that time we shall have one person in seven. That is to say the Indians will be 1/7th of the population of the world. We have to bear this fact in mind because, I regret to say that in the celebrations of forty years of Independence we have thought of everything except the pressures of our own population by the time we reach the twenty first century.

Our educational policy has not taken full stock of these eventulaties. We promise free and compulsory education up to the age of 14 which will mean an increase in the number of schools to a staggering extent. As to advanced education very recently in this University a learned lecturer referred to the words of Alfred North Whitehead where he said "First-hand knowledge is the ultimate basis of intellectual life" and inferred that

> "book learning conveys second hand information and as such can never rise to the importance of immediate practice."

He goes on to say

> "What the learned world tends to offer is one second hand scrap of information. The second handedness of the learned world is the secret of its mediocrity. Of course lessons in life are all around us."

Shri M. Hidayatullah delivering the convocation address

As against this Carlyle had said that a modern University is a mere collection of books. You cannot learn to work a super computer or produce a super conductor by self education. We are not Blaise Pascal whose genius began to appear before he was twelve and with a piece of charcoal he drew diagrams on floor and walls of the room in which he used to play. He had his own vocabulary. He called a line a bar and a circle a round. But he constructed his axioms and worked out complete demonstrations and found for himself the secrets of Geometry and without ever seeing a mathematical book he got to the thirty second proposition of the book of Euclid. We cannot all learn from Nature around us and must depend on the knowledge in garnered in books by others.

I have had a chance to be a student and a teacher and know the problems of teaching and of students, teachers and Universities. Unfortuately, today the problem of education is made many times more difficult because student life is not entirely academic but gets involved with the politics of the day. This is because the politicians do not leave them alone. I have known how disturbing and disrupting politics can be to the smooth running of education. When the students should concentrate on their studies they indulge in political squabbles and lose that serentity which is needed for absorption of knowledge and this knowledge can only come from those who possessed it before and work books.

A University is really a ground of various disciplines opening the door to diverse employments. It comes at the end of ones educational career. The problems of education both at the University level and earlier have been discussed by various committees and experts.

There is no one single suggestion but a variety of suggestions how to plan and establish our educational standards and competence of persons educated. Unfortunately, we have fallen into a routine which may be described as a rut. Time was when a modicum of education served the purpose both of the nation and its needs. Today the call of the nation is for excellence and the qualification needed to answer that call is also from your side.

We had, in the earlier days, when I was a student, a set pattern of education in the schools and colleges. I attended half a dozen schools and found the education run, on almost similar lines. Later, when I became more educated and entered the University as a student and later as a part of the University administration, I noticed in half a dozen Universities in india that the educational pattern was almost the same. There is very little variety or specialisation. Therefore when we talk of the problem of education in India, we have to think of it in two different directions. The first is the education of masses of the students who begin their scholastical career. The second is, if I may say so, to put the finishing stage when a specialised education is imparted to fit the students for certain occupations. The problem of educating the children and adults is different from a problem of educating the University students. In the first instance there may be some similarity in education because in the formative period of a child as he grows to be an adult, he needs the equipment of basic knowledge—the basic knowledge used to be described in our days by reading, writing and arithmatic. Once that was over, the basic education was complete. Today that basic education has become very fast and the schools try to hurry from the first entry to the next stage viz , the University stage. For this purpose, we have now evolved what is known as 10+2 stage before a student enters the University. The 10+2 stage is the most important stage in the education of the masses. In fact most of the tasks to be done in our country can be done by persons who have finished the 10+2 education with a little extra training for a specialised job. Unfortunately, a University degree viz., B.A., M.A. or Ph. D. have attained some importance which they do not deserve for ordinary purposes. A 10+2 student with a little specialised training, as I said, can handle most of the jobs; you do not need a Ph. D. for being a stenographer, a sub-inspector or a storekeeper. I have had people working under me who were very highly educated but were employed in such a place that their high qualifications did not count. Therefore, much emphasis on University degree is to be discouraged and that can only be done if the qualification for employment is placed at a lower level, say 10+2 qualification. In fact, for most ordinary jobs, in government or private undertakings a person with a good background of 10+2 education can be as satisfactory as a person with an M.A. or a Ph. D. degree. To put a premium on degrees makes a student lose many years of useful employment and much expenditure on the parents who give support to him to go through a university curriculum.

On the other hand, the problem of the education of children up to the age of 14 and of uneducated adults is even more difficult. If our population is placed at 800 Million, the number of such persons can be imagined. The number of schools and teachers needed will be staggering. Our effort should be to make all literate and to go slow in trying to give all a University education. We must have more technical and vocational schools who must be in touch with employers and cater to their needs. That way employment will be assured. That is how unemployment has been brought down to almost nothing in South Korea. In Korea, the aptitude of a boy or a girl is found from special reports given by the teachers. As soon as he or she is basically trained, they are diverted into a channel where their aptitude will grow and they will become useful workers. Employment follows and they pursue the line which had been determined for them. The result is that there is almost no unemployment because every child going through school is assured of a job according to the aptitude. In our country the unemployment figure is in the neighbourhood of the 20% of the citizens.

Therefore, we have to take a second look at our educational policies keeping in view the requirements of the country and pay attention to the aptitude of the person concerned. There is no use trying to teach the same curriculum year after year to different batches of students without training. What would be the use of that education in our life ? The Mahatma said that he learnt so many things in the schools and colleges which he never put to use in life. Therefore stereotyped curriculum is to be avoided.

We Congratulate . . .

(1) **Dr. H. S. Singh who has taken over as Vice-Chancellor of the Haryana Agricultural University, Hisar.**

(2) **Dr. Bhaskar Roychoudhury who has taken over as Vice-Chancellor of the University of Calcutta.**

National Centre of Astronomy

The University Grants Commission has approved a National Centre of Astronomy and Astro-Physics in the University of Poona which would be connected with the proposed project of the "giant metre wave length radio telescope" at Narayangaon, about 100km. from Poona. According to Vice-Chancellor Dr. V. G. Bhide, the Rs. 5-crore telescope project would have its academic headquarters in the university in which the Department of Atomic Energy and the Tata Institute of Fundamental Research were also participating. The university headquarters and the main telescope would have a satellite link.

Eminent scientist and astronomist, Dr. Jayant Narlikar, had set up the centre which was the second of its kind after the Nucleus Science Centre of the Jawaharlal Nehru University, New Delhi set up one-and-a-half years ago.

The UGC Chairman would head the Governing Council of the centre and the Poona University Vice-Chancellor would be its co-chairman.

Gorakhpur Engg. College Silver Jubilee

The Uttar Pradesh Chief Minister, Mr. Vir Bahadur Singh, has emphasised the need of close coordination between the technical institutions and the industry to enable wider application of modern technology in the country. He said that these institutions should try to keep themselves apprised of the latest requirements of the industry. He was speaking at the silver jubilee conference of the M. M. Malviya Engineering College in Gorakhpur recently. He said that the students studying in these institutions should be prepared to accept the challenges in the field.

The Chief Minister emphasised the need for developing a technology which suited the needs of the rural areas. It should require minimum possible money and should be able to utilize the resources available in the rural areas. Referring to the expansion of technical education in the State, Mr. Singh said that at the time of independence, there were only two engineering colleges while the present number of the engineering colleges is 10. Besides there are 72 polytechnics functioning in the State.

Keeping in view the latest developments, he said, courses in electronics engineering, production and computer science had also been introduced in various engineering colleges. He said that courses in textile engineering and chemical engineering would also be started soon in this college.

North Gujarat University Fully Functional

The North Gujarat University, established last year, is now fully functional. 42 colleges in North Gujarat with a student population of over 25,000 have been transferred to the New University from Gujarat University. It imparts postgraduate instruction in 22 Centres with an enrolment of 3242 students. At present the New University has the faculties of Arts, Science, Commerce, Law, Education and Engineering. It proposes to start postgraduate departments in the subjects of English, Mathmatics, Sociology and Computer Science.

Special UGC Aid for Madras Varsity

About 100 departments of Madras University doing research in science and technology have been identified by the University Grants Commission for special funding, according to Prof. Yash Pal, Chairman, UGC.

These departments will be given equipment which normally the Universities could not hope to possess and the value of this assistance may go up to Rs. 50 lakhs. All these would be on top of the basic infrastructure aid being given by the UGC to the university through departments for special assistance and the Centre for Advanced Study. The special aid now being processed will lead to the adoption of quality programmes by universities.

Inter-University Centres

Inter-university centres for collaboration between universities with the help of common facilities are sought to be promoted by the UGC. The first of these coming up will be the Nuclar Science Centre to be located in the Jawaharlal Nehru University in Delhi, where a large accelerator facility is being set up. A registered society has been formed which will be managed by an inter-university board in which the UGC also will be partner. The cost of the accelerator will be of the order of Rs.10 crores spread over a span of five years.

Central Varsity for Assam

The Union Government is reported to have agreed to set up a Central University in Assam's minority dominated Barak valley. This was revealed by Shri Santosh Mohan, Union Minister of State for Communications, on one of his recent visits to Silchar.

News from Agril. Varsities

Biotechnology in SAARC Countries

An international seminar on the role of plant physiology and biotechnology in the SAARC Countries was organised by the Gorakhpur University. Delivering the inaugural address at the seminar, Prof. V. Puri, Prof. Emeritus observed that ever since man started farming, about 8,000 years ago, efforts were being made to increase crop yield by various methods and practices evolved in years of long experience rather than a clear understanding of factors involved. He said that shifting-cultivation was one such method—a practice still followed by some tribals in our eastern states. Recently substantial increase in yield had come from : (1) increased fertilizer use, (2) use of improved agronomic practices, (3) use of improved seed and to some extent (4) understanding of environmental conditions.

All this, he said, appears to give the impression that increased crop productivity was essentially the function of plant breeder and the agronomist, and breeding work and management studies had achieved much and would continue to do so in future. But a clear understanding of the factors and processes contributing to yield potential, enabled us to circumvent some of the limitations that may confront us, he said. Besides, most of the basic facts about plant nutrition, plant growth and plant responses were provided by physiologists and the plant physiologist could still make significant contributions to crop productivity notwithstanding the scepticism expressed in certain quarters, he added.

A promising alternative that came to mind, he said, was the biofertilizers that harness atmospheric nitrogen with the help of specialised soil micro-organisms. The importance of biofertilizers was said to have been "indirectly known to our ancestors when they transferred large amounts of soil from areas where leguminous crops were flourishing to areas where they were less luxurious." The nitrogen fixing micro-organisms might be either free living in the soil or symbiotically living with other plants and they might, therefore, contribute fixed nitrogen to plants directly or indirectly.

Prof Puri said that many laboratories, all over the world were busy finding ways and means to augment biological nitrogen fixation as it was so cheap. But the conventional approach involved using better strains of rhizobia, providing better environmental condition for these strains, while the non-conventional approach had great potential and this aimed at inducing nodule formation in cereals, and other plants hybridizing nitrogen fixing bacteria with other bacteria.

Discussing the problems relating to cooperation for quality research, he said that some of these problems were being tackled in the various laboratories, but the technical facilities available to the workers here were by and large not adequate. This could be made good to some extent by more frequent exchange visits by research workers in the area and by resorting to some sort of planning with a view to avoid unnecessary duplication and wastage of limited resources. In fact, some sort of cooperation between different SAARC countries could not be overemphasized and this might even extend beyond agriculture to energy and health, two other areas that deserved equal emphasis, he added.

He lamented that the experimental research work had not yet received the international recognition to the extent it deserved. He exhorted the practitioners of different areas of plant sciences, to see that the work we produce was of such a nature and standard that it got due place in international literature. This would be possible only when we commit overselves to science and scientific attitude, he said.

New Poultry Project for KAU

The ICAR has accorded sanction for the implementation of an AICRP on Poultry Nutrition during the seventh five year plan for a period of three years at a total financial outlay of Rs. 5,12,240 to be shared between ICAR and Kerala Agricultural University (KAU) on a 75:25% basis. The objective of the project is to establish nutrient requirements as influenced by season, for promising strain crosses of white leghorn developed at AICRP on Poultry for eggs, at Mannuthy Centre.

New Cotton Varieties Evolved

Three improved varieties of cotton have been envolved by Pakistan's cotton research institute at Faisalabad. The new varieties are not only high yielding but their fibre quality and fibre length is also good.

The Ayub Agricultural Research Institute has recently evolved a new rice variety as well. The new variety labelled as Basmati-385 has all the characteristics of Basmati-370 in addition to being short statured. It has a high yielding potential and gives 80 per cent more produce.

News from Abroad

Message To Next US President

The Commission on National Challenges in Higher Education, created by the American Council on Education, has prepared a Memorandum for circulation to all the Presidential candidates. It sets out five major challenges facing the next president and detailed steps the federal government and higher education should take to make sure the challenges are met.

Highlights of the five challenges are as follows :

(1) Educate Americans for an increasingly interdependent world.

"Many Americans are uniformed about other peoples and countries and poorly prepared for an increasingly interdepent world", the commission said.

The report called on colleges and universities to strengthen all fields of international study, to improve teaching of foreign languages and culture, and to provide more opportunity for educational exchanges for both students and scholars.

The report recommended that the next president provide federal support to bolster such programs and to support development on joint international research and educational programs at the university level.

(2) Help revitalize the economy.

"As major sources of discovery, innovation, and invention, colleges and universities are already significant contributors to our advanced, technology-based economy," the memorandum said.

But, it pointed out, the institutions of higher learning can do much more to develop working relationships with industry, to secure private funding for research, and to take initiatives far beyond research activities to help the nation become more competitive.

These initiatives would include: improving management training in business schools; strengthening programs in industrial engineering; increasing international emphasis in law, business, and public administration schools; and upgrading teacher preparation and attracting more mathematics and science teachers.

The educators recommended that the next Aministration initiate programs to increase the supply of teachers at all levels, provide tuition benefits received from an employer tax exempt.

Addressing the link between a vital economy and "America's preeminence in research," the commission recommended that the next president expand federal support for graduate research assistantships and support the construction and renovation of research and teaching facilities through the National Science Foundation and the National Institutes of Health.

(3) Expand educational opportunity.

The educators called on the next president to :

● intensify federal efforts to encourage disadvantaged students to seek higher education through expansion of such successful programs as Head Start and Upward Bound;

● increase need based education grants funding and other student assistance programs; and

● reduce excessive reliance on student loans by increasing grant support.

The commission said colleges and universities should "share the responsibility" for assuring repayment of student loans.

The message also said the new Administration should consider an "educational savings account" concept to provide parents with an incentive to save for their children's education and to increase graduate fellowships for minorities.

(4) Address human needs and the quality of life.

To restore the close partnership between government and higher education for the purpose of attacking social problems, the commission called on the new president to :

● provide increased support for applied social science research;

● initiate programs to study and improve the quality of public and preventive health care; and

● increase support for preserving our scholarly resources and develop new computerized information storage and retrieval systems.

(5) Restore respect for fundamental values and ethical behavior.

The commission pointed to the

pervasive sense in America today that "we have lost touch with fundamental values and standards of ethical behavior," evidence being widely publicized scandals in the public and private sectors.

It noted the effort to strengthen values is less a task for government than for the family, schools, and religious institutions, but said higher education can make a contribution by improving curriculum offerings in traditional courses in philosophy, religion, literature, and political science, as well as by creating new courses in moral reasoning and professional ethics.

The Commission urged the new president to expand federal programs for community service at home and abroad and to create incentives for students to enter public service careers in teaching, public health, and social welfare.

The Commission chaired by William Friday, President Emeritus of the University of North Carolina comprised prominent educators of the United States.

World's Most Accurate Clock

Physicists at the University of Western Australia (UWA) are developing a clock which they believe will keep time more accurately than ony other in the world. It will be made from ultra-pure, artificial sapphire.

The scientists recently announced the completion of the first stage of their project, a clock which loses or gains only one second every 30 million years. This makes the present UWA clock as accurate as the other most accurate timepiece presently in use, the atomic clock.

The new Australian clock has a core made from artificial sapphire, in a principle similar to that which uses quartz in everyday wrist watches. According to Dr. David Blair, senior UWA physics lecturer, this gives their invention more stability than the atomic-hydrogen clock.

Dr. Blair said the UWA team could make the sapphire clocks—which would be suitable for use in radioastronomy and the tracking of spacecraft—more cheaply than the atomic clock. The oversized, handless sapphire clocks could be produced for $100 000 each compared with the atomic-hydrogen clocks, which cost $300 000 a piece and were very expensive to maintain.

Dr. Blair predicted that the UWA team could make a breakthrough in producing a yet more sophisticated clock "in the next few months". This clock of the future would be out by only a second in the estimated age of the universe—10,000 million years. By comparison, the average wrist watch loses or gains a second a day,

The discovery in 1984 of revolutionary sapphire technology provided a lead to the development of the new generation clocks. The research was a spin-off from gravitational wave research.

The UWA research has been supported by grants from the Commonwealth Scientific and Industrial Research Organisation and the Australian Research Grants Scheme.

The precision of the clocks would be demonstrated in a Bicentenary project in 1988 when more than 11 radio dishes around Australia would link up to obtain an accurate picture of the skies above the Southern Hemisphere.

Recent Publications

1. Handbook of Medical Education-1987 : Rs. 45.00
2. Monograph on Sample Free Item Analysis : Rs. 50.00
3. Bibliography of Doctoral Dissertations in Social Sciences & Humanities 1983-84 : Rs. 180.00
4. Educational Statistics at a Glance : Rs. 75.00
5. Education and Economic Development : Rs. 25.00

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CALENDAR OF EVENTS

Proposed Dates of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
January 20-23, 1988	History and Literature : Patterns of Identity Formation in Modern India	To explore the possibilities of using literature for understanding the formation of a veriety of collective identities—national, regional, linguistic—in modern India by getting together specialists from literature and the social scientists.	Centre for Social Studies, South Gujarat University, Surat.	Prof. Sudhir Chandra, Centre for Social Studies, South Gujarat University, Surat-395007
January 25-Feb. 5, 1988	International School on Crystal Growth and Characterisation of Advanced Materials for Solid State Applications	An advanced level School highlighting the pace of advances in the field of Crystal Growth, especially showing the links between fundamental and applied research.	Crystal Growth Centre, Anna University, Madras.	Prof. P. Ramasamy, Head, Department of Physics, Anna University, Madras-600 025
February 5-6, 1988	**National Seminar on Interaction between Institutions and Industries through Science and Technology Entrepreneurs' Parks**	**To provide a forum of young entrepreneurs, industrialists, scientists and educationists to deliberate on the vital issues of Industry-Institution interaction.**	**STEP, Roorkee and University of Roorkee, Roorkee.**	**Prof. M.P. Jain, Organising Secretary, National Seminar IIISTEP, Office of the DRIL, University of Roorkee, Roorkee-247667**
February 7-9, 1988	Mapcost Symposium on Indian Studies on Chrysomelidae and Bruchidae	To discuss different aspects of study of Chrysomelidae and Bruchidae insects.	Govt. Arts and Science College, Durg (M.P.).	The Secretary, Mapcost Symposium, Govt. Arts and Science College, Durg-491001 (M.P.)
February 18-20, 1988	Dalit Literature	To review and reassess the role and relevance of Dalit Literature in building an alternative perspective on Indian social, political and cultural life.	Centre for Soical, Studies, South, Gujarat University, Surat	Prof. S.P. Punalekar, Centre for Social, Studies, South Gujarat University, Surat-395007
February 19-21, 1988	Conference on Ecology and Environment	To identify and define various issues relating to Ecology and Environment and evolve Strategies to meet the challenges of ecological imbalance, environmental pollution, etc.	Mugra—Gagan, Hingoli—Sponsored by the Department of Science and Technology, Govt. of India, and supported by Marathwada University, Aurangabad.	Prof. Vasant Purohit, Director, Ecology and Environment Conference, Saket, 6 Shri Saikripa Colony, Shiwaji Nagar, Hingoli-431 513
March 10-12 1988	Nationalism : Problems and Challenge	To discuss different aspects of the development of nationalities during 19-20th centuries and their relationship with Indian nationalism.	Centre for Social Studies, South Gujarat University, Surat in collaboration with K.M. Munshi Centenary Committee, Gandhinagar.	Prof. Ghanshyam Shah, Centre for Social Studies, South Gujarat University, Surat-395007
July, 12-14 1988	**International Symposium on Recent Advances in Male Reproduction**	**The Symposium will focus on Molecular Biology of Inhibin, Androgen Binding, Protein Regulation of Fertility, Peptides in Testis Function and Steroidogenesis in Testis**	**University of Hyderabad in collaboration with the Indian Society of Andrology**	**Prof. P.R.K. Reddy, School of Life Sciences, University of Hyderabad, Hyderabad 500134**

MINISTRY OF HUMAN RESOURCE DEVELOPMENT
(Department of Education)

SPANISH GOVERNMENT SCHOLARSHIPS 1988–89.

Application on plain paper as per prescribed format, are invited from Indian Nationals for the award of five scholarships to study Spanish language. The salient features of the offer as are under :—

1. **Qualifications** :—Master's degree in Spanish language.
2. **Experience** :—Preferably two years' Teaching/Practical Training/Research experience as on 1.4. 1988 after the prescribed qualification. Candidates already registered for Ph.D. in an Indian University will be given preference.
3. **Level of Study** : Ph.D. level research/training.
4. **Duration** : A minimum of two & maximum period of nine months or twelve months starting from October, 1988.
5. **Value** : 58000 (Approx. Rs. 6,500/—) peretas p.m.
6. **Age** : Not exceeding 33 years as on 1.10. 1988 (Relaxation in age upto two years will be given in the case of SC/ST candidates).
7. **Passage Cost** :—Passage cost from India to Spain and back will be borne by the candidate or his/her employer/sponsor, subject to the availability of funds, the passage cost may be met by the Government of India in accordance with the rules of eligibility etc.

Note : (i) Equivalent foreign degree will be considered. (ii) Candidates, who have already been abroad for research/training/study on scholarship are eligible to apply only if they have been in India for at least three years after their return from abroad. (iii) Candidates should have adequate knowledge of geographical situation and cultural heritage of India, and of the donor country. (iv) Applications of candidates who are abroad will not be considered. (v) A recent passport size photograph should be affixed on the right side of the format. (vi) Applications which do not contain Postal Order will not be considered. (vii) Candidates **NOT** fulfilling the requisite qualifications need not apply. (viii) Canvassing in any form will be disqualified for interview/fellowship.

FORMAT OF APPLICATION

Recent
Passport
size
Photograph

1. Name of the Scholarship Scheme
2. (a) Subject (b) Sub-subject
3. Name of the Candidate (in Block Letters)
   (Full Mailing Address)
4. Date of Birth and the State to which
   the Candidate belongs
5. Whether a member of SC/ST or a tribal or
   aboriginal community if so, give full particulars.
6. Academic record starting from High School/Higher Secondary.

Name of the Board University/ Institution	Exam(s) Passed	Year of Passing	Division/Class with Position if any*	Percentage of Marks obtained & Position, if any.	Subjects taken

*(In case no Division/class is awarded and only grading is done, the conversion formula adopted may be mentioned).

7. Details of Professional Practical Training and Research Experience specifying the period and number of papers published, previous employment with the name and date of employment if any.
8. Nature of the present employment with date of appointment, designation and the name and address of the employers.
9. Have you been abroad, if so, give full particulars of the country and the period. Also mention the year of return to India.
10. Proposed programme of study/research/training, specifying ; (1) the work at present engaged in; (2) future plans prospects after the proposed studies/research; (3) nature and programme of study/research desired; (4) how are these related to the technical or economic development of India.
11. Number and Date of Crossed postal order of Rupees five (Rupee one and paise twenty five only in case of SC/ST candidates etc.) attached with the form.

Note : Employed persons must send their applications fully-sponsored by their employers. However, advance applications complete in all respects will be considered provisionally pending sponsorship by employers. Applications must be sent to the Assistant Educational Adviser, Ministry of Human Resource Development (Deptt. of Education), External Scholarships Division, ES. 5 Section, Room No. 577, 'B' Wing, Shastri Bhavan, New Delhi-1 by **31st January, 1988.**

Place : **Date :** **(Signature of Candidate)**

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AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertations as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Kalayanthanickal, Sunny Joseph. *Special classes of regular semi-ground and construct structure therein about them.* Kerala. Dr. S. Madhavan.

Physics

1. Aggarwal, Mamta. *Study of equatorial waves in the middle atmosphere.* Delhi. Dr. O.P. Nagpal.

2. Dashtiani, Masoud. *Semi-conductor material device.* Delhi. Prof. P.C. Mathur.

3. Jha, Pankaj Kumar. *Ionospheric Physics.* Delhi. Dr. K.M. Aggarwal.

4. Pradeep Kumar, V. *Molecular studies on mycobacterial assemblies : Experimental and theoretical aspects.* Delhi. Dr. Madan Mohan Bajaj.

5. Prasad, Abhay Kumar. *Solar Physics.* Delhi. Dr. K.M. Aggarwal.

6. Raj Kamal. *Gause theories in 10 dimensions.* Delhi. Dr. R.P. Saxena.

7. Sethi, Shiv Kumar. *Field theories and early universe.* Delhi. Prof. N. Panchapakasan.

8. Sherawat, Kiran. *Certain equilibrium configuration in latest field theories.* Delhi. Dr. R.P. Saxena.

Chemistry

1. Awate, S.V. *Synthesis and characterisation of zeolites catalysts.* Shivaji. Dr. P. Ratnasamy.

2. Bobde, Vivek. *Physico-chemical and enzymatic studies on synthetic oligonucleotides.* Delhi. Prof. M. Atreyi.

3. Jayaprakash, T.N. *Synthesis of organic compounds possessing bioactivity.* Delhi. Dr. H.G. Krishnamurty.

4. Redekar, R.R. *Studies in solution chemistry of metal complexes with thio-ligands.* Shivaji. Dr. P.P. Hankare.

5. Vithalkar, L.G. *Immobilization of some industrially important enzymes-glucosidases.* Shivaji. Dr. N.B. Patil.

BIOLOGICAL SCIENCES

Microbiology

1. Bansal, Sunita. *Studies on yet unknown fungal allergenic spores in Delhi Metropolitan Area.* Delhi. Dr. M.K. Aggarwal and Dr. R.K. Saxena.

2. Wadhwa, Vipul. *Microbial genetics.* Delhi. Dr. Sheela Srivastava.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities.

PHYSICAL SCIENCES

Mathematics

1. Agarwal, Sudha Rani. *The effects of rotation and tidal distortions on the structure and periods of small adiabatic oscillations of composite models of stars.* Roorkee.

2. Arora, Laxmi Kant. *Study of general transcendental functions.* Rajasthan. Dr. A.N. Goyal.

3. Bhramarambica, M.V.S. *On the densities of certain sets of integers.* Osmania.

4. Deo, Shridhar. *Some problems of physical distribution in Robertson-Walker universe.* Manipur. Dr. R.K. Tarachand Singh.

5. Durga Prasad, K.V. *Construction of translation planes and determination of their translation complements.* Osmania.

6. Jayanthan, A.J. *Dispersed metric spaces and related topics.* Hyderabad. Prof. V. Kannan.

7. Manoj Kumar. *Numerical solutions of some flow problems.* Roorkee.

8. Mohanty, Shakti Prasad. *Application of probability in theory of equation.* Utkal.

9. Nath, J.K. *On convolutable Banach spaces of distributions.* Roorkee.

10. Patil, Mahadeo Raghunath. *Some problems in fluid mechanics.* Shivaji.

11. Shah, Madhubala Arun. *Rheology of special materials in relativity.* Shivaji. Dr. B.B. Waghmode.

12. Shukla, Anjali. *Differential geometry of almost complex and almost contact monifods.* Magadh.

13. Udpikar, Shrinivas Gururaj. *On the coefficients of the Hilbert polynomial of certain determinental ideal.* Panjab.

Physics

1. Agarwal, N.C. *Study of reactive and non-reactive inelastic collision in molecular systems.* Vikram. Dr. P.M. Agarwal.

2. Desai, Jayashree Shrinivas. *Some studies on Cu-In-S thin films and their use in ECPV cells.* Shivaji. Dr. S.H. Pawar.

3. Ghiya, Bhimsen Hargovind. *Study of zi centre formation in alkali halides.* Nagpur. Dr. B.T. Deshmukh.

4. Gopalakrishnam Raju, Dandu. *Some studies on infrasonic waves and gravity waves in the ionospheric F. region using H.F. Phase earth technique.* Andhra.

5. Jain, Rajnish Kumar. *Studies on mechanical and thermal behaviour of carbon fibre reinforced phenolic and furan composites.* Delhi.

6. Kanitkar, Ravindra Govindram. *Studies on mineral zeolites-heulandite and mesolite and hydrothermally synthesized zeolite crystals.* Patel. Dr. M.S. Joshi.

7. Khasare, Shailendra Bajirao. *Investigation on some aspects of molecular interactions in liquid state.* Nagpur. Dr. B.A. Patki.

8. Mishra, Mahesh Kumar Bajarang. *Crystal growth and studies in ferro-electric domains in* $KNbO_3$ *single crystals.* Nagpur. Dr. S.G. Ingle.

9. Mithlesh Kumari. *Some problems of condensed matter.* Roorkee.

10. Mukhopadhyay, Asokchandra. *Some studies on the structure and physical properties of jute fibres.* Calcutta.

11. Palaniandavar, N. *Studies on periodic crystallisation of cadmium hydroxide and cadmium sulfide in agar agar gel.* Anna.

12. Pothukuchi, V.K.S. Baba. *Production of resonances* $(\pi^{x\circ}\Sigma_x)$ *in high energy M+P and K—P interactions.* Jammu. Dr. N.K. Rao and Dr. V.K. Gupta.

13. Ramvir Singh. *Heat conduction through multi phase porous systems.* Rajasthan. Dr P.V. Bakore and Dr. D.R. Chaudhary.

14. Raychaudhuri, Anuradha. *X-ray diffraction study of some crystals.* Calcutta.

15. Sharma, Bal Krishan. *Some studies on electrical and structural behaviour of borate glasses.* ITT Delhi. Prof. S.C. Mathur and Dr. D.C. Dube.

16. Sharma, Rameshwar. *Semi-empirical SCF-MO-CI calculation of electronic spectra of polyatomic molecules.* Magadh.

17. Shylaja, B.S. *Emission live studies on Wolf Rayat Binary systems.* Bangalore. Prof. J.C. Bhattacharya and Dr. M.N. Anand Ram.

18. Soneji, Devendra Kumar. *Study of hyperfine fields in some metals and alloys.* Sukhadia. Dr. J. Verma.

19. Swain, Bipin Behari. *Study of some dielectric properties of polar liquid mixtures.* Utkal.

20. Varshney, Ravendra Kumar. *Studies on the propagation characteristics of polarization maintaining optical waveguides*: IIT Delhi. Dr. Arun Kumar.

Chemistry

1. Dani, Shripad Prabhakarrao. *Studies on the use of modified starches, celluloses and some other unconventional materials in the treatment of waste waters containing toxic heavy metal ions.* Nagpur. Dr. S.S. Dara.

2. Jain, P.K. *Studies in the use of brilliant cresyl blue for solar energy conversion.* Sukhadia. Dr. R.C. Ameta.

3. Kuchekar, Shashikant Raghunath. *Extraction and separation studies of some metals.* Shivaji. Dr. M.B. Chavan.

4. Mehta, Surinder Kumar. *Thermodynamic properties of some binary and ternary systems and their correlation with their viscosities.* Panjab.

5. Mishra, Anita. *Synthesis and analytical applications of some imidoyl chloride derivatives.* Ravishankar. Prof. R.K. Mishra.

6. Mohammad Saidul Islam. *Studies on the metal complexes of some organic acids, amines and acid imides.* Roorkee.

7. Mukherjee, Satendra Nath. *Nature and composition of clay minerals in coal and their changing pattern with reference to coal metamorphism.* ISM. Dr. P.K. Gangopadhyay and Dr. B.K. Mazumdar.

8. Nepal, Jitander Kumar. *Coordination chemistry studies on the stability of some bivalent transition metal complexes.* Kurukshetra.

9. Pandya, Bhavna Jagannath. *Study of mono and binuclear complexes involving oxo-cation.* Baroda.

10. Prasada Rao, Talluri Dinakara. *Analytical studies on chemical composition and physical properties of Northern light soil flue-cured virginia tobacco as influenced by varieties, fertiliser schedules and cultural practices.* Andhra.

11. Ram, Kapil Deo. *Some studies of isotopic exchange reaction of iodine on iodide-iodate system by radiotracer technique.* BHU. Dr. Ramji Tripathi.

12. Ramachandran, Kishore. *Synthesis of pyrethroids based on (+)-3-Carene.* Baroda.

13. Ramachandran, Nirmala. *Electrochemical coal conversion.* ISM. Dr. Dipak Guha.

14. Ramachandran, Rama Devi. *Synthesis of Si(IV), Al (III), Mn (II), Al(III) and Ca(II), Al(III)u-oxoisopropoxides and their reactions with N and O containing ligands.* Delhi.

15. Rayappa Reddy, T. *One election oxidation of some organic and inorganic compounds by* Ni_3 *+ion in aqueous* H_2SO_4 *media : A kinetic and mechanistic approach.* Osmania.

16. Sanwari, Rehna. *Studies with ion exchange resins on phenolic compounds.* Sukhadia. Dr. C.V. Bhatt.

17. Saxena, Mira. *Chemical investigation of some Indian medicinal plants.* Devi Ahilya. Dr. S.K. Srivastava.

18. Seth, Sushila. *Studies in photogalvanic cells and solar energy conversions.* Sukhadia. Dr. S.C. Ameta.

19. Varma, Roop Chand. *Studies on zinc complexes of hydroxytriazenes.* Sukhadia. Dr. B.N. Purohit.

20. Vajra Lingam, G. *Synthetic of modified steroids.* Osmania.

21. Venkateswarlu, S. *Oxidating of some organic compounds by N-bromoacetamide : Kinetic and mechanistic study.* Osmania.

22. Wadhwa, Anju. *Iodometric microdetermination of certain acids by potentiometric and spectrophotometric methods.* Durgawati. Dr. R.M. Verma.

Earth Sciences

1. Bheemalingeswara, K. *Geochemical dispersion of base metals in soils and stream sediments in Pur-Banera mineralized belt, Bhilwara District, South Central Rajasthan.* Delhi.

2. Bhushan, S.K. *Petrology of malani volcanic rocks with special emphasis on the genesis of rhyolites.* Roorkee.

3. Chandrakantha, G. *Geo-hydrological and geochemical studies of ground water relating to irrigation and rural water supply in Dakshina Kannada District of Karnataka.* Bangalore. Dr. C. Naganna and Prof. M.R. Gajendragad.

4. Durge, Madhusudan Vishwanath. *Geology of the rocks of Patharia hills, Sagar, M.P.* HS Gour.

5. Joshi, B.C. *Geo-environmental studies in parts of Ramganga Catchment, Kumaun Himalayas.* Roorkee.

6. Paliwal, Rajendra Kumar. *On certain aspects of short range numerical weather prediction over India with a multilevel limited area primitive equation model.* IIT Delhi. Prof. M.P. Singh and Dr. U.C. Mohanty.

7. Pandian, M. Soundra. *Metallogenetic investigations of the Degana Tungsten Mining District, Rajasthan with an emphasis on identifying exploration parameters for tungsten deposits associated with acid magmatism.* ISM. Prof. O.P. Verma.

8. Qureshi, Mohammad Shafi. *A study of malani suite of rocks around Jalor, Rajasthan.* Durgawati.

9. Roy, Indrajit Ghosh. *The regularization method and its application on inverse problem for the interpretation of layered earth in resistivity method.* ISM. Prof. B.B. Bhattacharya.

10. Sharma, S. D. *Subsolidus equilibria relations in* $CoO\text{-}Mg^8\ Fe_2O_3$ *system in air and magnetic behaviour of its ferrimagnetic spinel phase.* Roorkee.

Engineering & Technology

1. Bimbhra, P.S. *Analysis and performance of semi converter fed Dc drives.* Roorkee.

2. Chaudhuri, Jyoti Prasad. *Separation of ethanol from ethanol-water system by membrane technique.* IIT Delhi. Dr. P. Ghosh and Dr. B.K. Guha.

3. Deb, Swapan Kumar. *Study of coordinated multimodel urban mass transportation system.* IIT Delhi. Dr. S.L. Dhingra.

4. Gupta, O.S. *A study of resonant cavity multiple device oscillator.* Roorkee.

5. Gurnam Singh. *Steady-state stability of synchronous generators with static excitation systems.* Panjab.

6. Jain, Ganpat Lal. *A new biotechnological approach to compensate for altered peripheral sensory perception.* IIT Delhi. Dr. J S. Pasricha and Prof. S.K. Guha.

7. Jain S.S. *Analysis, design and evaluation of flexible pavements for Indian environment.* Roorkee.

8. Kotdawala, R.R. *Limit state behaviour of ferrocement flexural elements.* Roorkee.

9. Maiske, Devdas Hari. *Study of computer methods in image analysis.* Nagpur. Dr. K.K. Joshi.

10. Mohan Rao, K.M. *Hydrological response of unsaturated zone upto water table.* Roorkee.

11. Mukhraiya, Jay Kishore. *Flow and performance investigations of centrifugal blowers with aerofoil blades impellers.* IIT Delhi. Dr. D.P. Agrawal and Dr. S.M. Yahya.

12. Pal, Jayanta Kumar. *Studies in well test analysis of some Indian oil fields.* ISM. Shri S. Laik and Dr. Gopal Krishnan.

13. Ramamoorthi, V. *Studies in mass transfer operation.* Anna.

14. Singh, S.P. *Studies on some potential non wood fibrous plants for pulp and paper making.* Roorkee.

15. Singh, Sheojee. *Rapid solidification studies of aluminium-transition metal alloys.* BHU. Prof. C. Suryanarayana.

16. Singh, Vimal Sheel. *Studies on the adsorption of surfactant/micellar flooding process for enhanced recovery of petroleum.* ISM. Dr. B.P. Pandey.

17. Sinha, Amarendra Nath. *Computer aided design and analysis of conveyorised material handling.* ISM. Prof. A.K. Basu.

Council of Scientific & Industrial Research

Advertisement No. 1/88

It is proposed to appoint two Scientist-F for the Central Electro-chemical Research Institute, Karaikudi. The major areas of R & D work at the Central Electro-chemical Research Institute are: all aspects of Electrochemical Science & Technology, Electronics & Electrobiology, Corrosion Science and Engineering, Industrial Metal Finishing, Fuel Cells and Batteries, Electro-hydrometallurgy, Electropyrometallurgy, Electrochemical Physics and Materials Sciences, Organic/Inorganic electrochemicals, Electrochemical Instrumentation and Electrochemical Education.

Job Requirements : These are senior research and management positions and the selected incumbents are expected to possess high level leadership in the respective disciplines with ability to motivate and lead a team of research scientists as well as to generate new ideas and take these to fruition. They would also be expected to assist the Director academically and administratively in planning, projecting, monitoring and evaluating multi-disciplinary research programmes as well as to identify, plan and coordinate research projects in their relevant areas at the HQ and at the regional centres of the institute. The incumbents in addition, are expected to have familiarity with modern equipments and techniques in their relevant areas of work. Since CECRI is multidiscipline-oriented, the incumbents should have skill for interaction with other scientists of the Institute.

Experience and Qualifications for Post—1 : (for Industrial Metal Finishing Division)

Essential : High academic qualifications in Science, Ph. D. degree with at least 20 years experience in the field of coating for corrosion protection and functional applications. Experience in fundamental and applied work on pre-treatment, organic coating, inhibitive pigment, electroplating of metals and alloys, electrodeposition, metallic coatings, surface modification of metals, diffusion coatings and inorganic coatings for decorative, protective and functional applications.

Desirable : Experience in dealing with protective coatings for pipelines in chemical industries, marine environments, piles in different port trusts, transport vehicles including railway coaches and protective schemes for steel structures in fertilizer industries, defence establishments, electricity boards and development of radiation resistant coatings for nuclear installations, painting of rusty steel, high solid coatings, zinc-rich paints, inhibitive primer and water-based coatings for electropainting and brushable air-drying/stoving type.

Experience and Qualification for Post—2 : (For Corrosion Science & Engineering Division)

Essential : High academic qualification in Science, Ph. D. degree, with a minimum of 20 years research experience in the field of Corrosion Science and Engineering, especially in the areas of basic studies, development of anticorrosion products like inhibitors, inorganic coatings, sacrificial anodes for cathodic protection etc. and design of electrochemical protection systems.

Desirable : Since CECRI is required to render services to the industries on various aspects of corrosion control, the incumbent is expected to possess proven experience in failure analysis, control of corrosion of heat-exchangers and other industrial equipments, design of anodic and cathodic protection systems for industrial equipments and structures and ability to interact with industries whenever on-the-spot examination of corrosion problems are to be undertaken.

Experience in organising colloquia, seminars, symposia, Industrial Get-togethers, training programmes and short and long-term refresher courses in their respective areas would be an added requirement.

Salary/Conditions of Service : The Salary Scale is Rs. 5100-150-5700-200-6300 plus allowances at Central Government rates. Higher initial pay can also be considered. This is a contractual appointment initially for a period of six years. The contract is extendable and the incumbent can also be confirmed. Consultancy subject to an upper limit of Rs. 15000 per year is permissible. Free medical aid and leave travel concession are also permissible for the family as per Government rules. Residential accommodation will be provided on payment of usual rent subject to availability.

Age : Preferably below 50 years, relaxable in deserving cases. A duly constituted Screening Committee will decide on the number of Scientists to be invited to meet the full Selection Committee. The decision of the Council on this behalf will be final. Applications from employees working in Government Departments, Public Sector Organisations and Government funded research agencies will be considered only if forwarded through proper channel and with a clear certificate that the applicant will be relieved within one month of receipt of the appointment orders.

Those interested may kindly send in their curriculum vitae in duplicate in the form obtainable from the Joint Secretary (Admn.) Council of Scientific & Industrial Research, Rafi Marg, New Delhi-110 001 on or before **15th March, 1988**. Any information about the Central Electrochemical Research Institute, Karaikudi, can be obtained in writing from the Director of CECRI, Karaikudi 623006, Tamil Nadu.

INDIAN COUNCIL OF MEDICAL RESEARCH

The Council proposes to appoint a **Research Officer** (Hindi Publication) for the Headquarters office of the Council, New Delhi.

Job Description

The incumbent will be required to

(1) Prepare in Hindi & English Scientific articles/bulletins on selected topics both for scientists and the lay public.

(2) Prepare Hindi Versions of the Annual Report of the Director-General, ICMR; the ICMR bulletin and other technical documents and information, as and when required.

(3) Participate in the preparation of display material and in exhibitions meant for scientific community and also laymen.

(4) Undertake copy-editing and proof-reading of Offset publications in Hindi and English.

Qualification and Experience

Essential : (i) Ist Class M.Sc. in Biomedical Sciences (preferably in Zoology, Microbiology, Biochemisty, Pharmacology, etc.) with a sound knowledge of Hindi and English.

(ii) Experience in technical writing/translating and editing of Science articles/reports in a reputed publishing organisation.

Desirable : Ph. D. in Biomedical Sciences (in the topics listed above)

(ii) Ability to interpret Science concepts in English and Hindi;

(iii) Experience in preparing Science material in layman's/Semi-technical language;

(iv) A degree or its equivalent in Hindi;

(v) Knowledge of Indian languages other than Hindi.

Salary/Condition of Service

The scale of pay attached to the post is Rs. 2200-75-2800-EB-100-4000 plus allowances as per Central Govt. Rules. Non-practicing allowance is admissible to Medical Graduates only as per rules of the Council. Benefit of pension admissible.

Age

Below 45 years. SC/ST candidates allowed relaxation in accordance with Government of India Rules.

Candidates called for interview will be paid 2nd class return fare on production of documents.

Applications from employees working in Govt. Departments, Public Sector Organisations and Govt. funded research agencies should be forwarded through proper channel.

Applications can be obtained from the office of the Director-General, Indian Council of Medical Research, Post Box No. 4508, Ansari Nagar, New Delhi-110 029 on or before **28th January, 1988**. Forms duly completed should be sent to the Director General, Indian Council of Medical Research, Post Box No. 4508, Ansari Nagar, New Delhi-110 029 with a crossed Indian Postal Order for Rs. 8/- payable to Director-General, ICMR, New Delhi. SC/ST candidates are exempted from this payment. Incomplete and late applications will not be entertained. Forms duly completed should reach the ICMR Office **on or before 6th February, 1988.**

MINISTRY OF DEFENCE

DEFENCE RESEARCH & DEVELOPMENT ORGANISATION (DRDO)

Advt. No. 014/RAC/88

Openings for a Challenging and Rewarding Career in the Field of Defence Research and Development

The DRDO undertakes research and development projects for upgrading the technology to meet the multitudinous requirements of fighting force of the country. Excellent career opportunities affording a challenging and rewarding work experience in different streams of disciplines exist. There are about 40 laboratories/establishment located all over the country equipped with latest R & D facilities. Labs are located in Delhi, Bangalore, Hyderabad, Pune, Madras, Bombay, Dehradun, Cochin, Vishakhapatnam, Balasore etc.

Applications are invited for the following positions:

(A) Scientist 'G'—(Rs. 5900-7300) —1 Post

Item No. HQ DRDO, New Delhi—1 Post

Essential Qualifications : At least second class Bachelor's degree in Civil Engg. from a recognised university or equivalent, (ii) Twelve years' experience in planning, design or development of large R and D civil works projects including setting up of specialised technology facilities of which 5 years should be in a senior responsible position having displayed innovative skills in introducing newer approach to construction management.

Desirable Qualifications: (i) Master's degree in Civil Engg, (ii) Postgraduate degree or diploma in management, (iii) Candidate should have wide exposure and be conversant with high technology R and D facilities in the country and abroad.

(B) Scientist 'E' (Rs. 4500-5700) —2 Posts

Item No. 2 -1 Post - (Defence Research and Development Laboratory, Hyderabad)

Essential Qualifications: (i) At least second class Bachelor's degree in Electronics/Telecommunications/Electronics and Communications/Computer Engg. from a recognised university or equivalent. (ii) Ten years' research, design and development experience in developing computer-based Management Information System for R and D projects of which at least three years should be in a responsible position.

Desirable Qualifications: (i) Master's degree in Electronics/Telecommunications/Electronics and Communications Computer Engg., (ii) Experience in planning and commissioning of communication/computer systems.

Item No. 3 —1 Post—(Defence Research and Development Laboratory, Hyderabad)

Essential Qualifications : (i) At least second class Bachelor's degree in Mechanical/Aeronautical Engg. from a recognised university or equivalent, (ii) Ten years' research, design or development experience in precision fabrication of aerospace systems hardware.

Desirable Qualification : (i) Master's/Ph.D degree in Mechanical/Aeronautical Engg., (ii) Experience in management of aerospace systems hardware.

(B) Scientist 'D' - (Rs. 3700-5000) —2 Posts

Item No. 4 -1 Post -(Naval Science and Technological Laboratory, Vishakhapatnam)

Essential Qualifications: (i) At least second class Bachelor's degree in Electrical/Electronic Engg. with specialisation in Control Engg. from a recognised university or equivalent, (ii) Eight years' research design or development experience in electrical/electronic control systems.

Desirable Qualifications : Master's/Ph.D. degree in Electrical/Electronic Control Engg.

Item No. 5—1Post- (Defence Research and Development Laboratory, Hyderabad)

Essential Qualifications : (i) At least second class Bachelor's degree in Electronics Engg. from a recognised university or equivalent, (ii) Eight years' research, design or development experience in system engineering of radars and signal processing.

Desirable Qualifications : (i) Master's/Ph.D. degree in Electronics Engg./Microwave Engg., (ii) Experience in synthetic aperture radars and Track While Scan (TWS).

(D) Scientist 'C' (Rs. 3000-4500) —12 Posts

Item No. 6—Mechanical Engineering—1 Post (Defence Laboratory, Jodhpur)

Essential Qualifications : At least second class Bachelor's degree in Mechanical Engg. from a recognised university or equivalent, (ii) Four years' research, design or development experience in the field of desalination technology.

Desirable Qualifications: (i) Master's degree in Mechanical Engg., (ii) Experience in the design, maintenance and operation of high pressure pumps.

Item No. 7 —Physics —1 Post—(Defence Laboratory, Jodhpur)

Essential Qualifications: (i) At least second class Master's degree in Physics from a recognised university or equivalent, (ii) Four years' research, design or development experience in the area of Microwave Physics.

Desirable Qualifications : M. Tech./Ph.D. degree in Microwave Physics/Remote Sensing.

Item No. 8—Physics 1 —Post (Defence Laboratory, Jodhpur)

Essential Qualifications : (i) At least second class Master's degree in Physics from a recognised university or equivalent, (ii) Four years' research, design or development experience in Infra-red or Solid State Physics.

Desirable Qualifications : M. Tech./Ph.D. degree in Infra-red/Solid State Physics.

Item No. 9—Psychology —1 Post —(Defence Laboratory, Jodhpur)

Essential Qualifications: At least second class Master's degree in Psychology with specialisation in experimental psychology from a recognised university or equivalent, (ii) Four years' research and development experience in experimental Psychology—visual perception related studies.

Desirable Qualifications : Ph.D. in Experimental Psychology/Visual Perception.

Item No. 10—Bio-Chemistry —1 Post (Directorate General Medical Services)

Essential Qualifications : (i) At least second class Master's degree in Bio-chemistry from a recognised university or equivalent, (ii) Four years' research and development experience related to medical pathological problems.

Desirable Qualifications: Ph.D degree in Bio-chemistry.

Item No. 11 —Electronics Engineering —1 Post (Aeronautical Development Establishment., Bangalore)

Essential Qualifications : (i) At least second class Bachelor's degree in Electronics/Telecommunications/ Electrical Communications Engg from a recognised university or equivalent. (ii) Four years' research, design or development experience of hardware in VHF/ microwave frequency band for airborne applications.

Desirable Qualifications : Master's degree in Electronics / Telecommunications / Electrical communications Engg.

Item No. 12 —Electronics Engineering —1 Post (Electronics and Radar Development Establishment, Bangalore)

Essential Qualifications : (i) At least second class Bachelor's degree in Electronics/Electrical Engg. from a recognised university or equivalent, (ii) Four years' research, design or development experience in microwave transmitter systems, high voltage power supplies and control circuits and microwave measurements.

Desirable Qualifications : (i) Master's degree in Microwaves/Control Systems, (ii) Experience in transfer of technology.

Item No. 13 —Aeronautical/Mechanical Engineering—2 Posts —(Resident Technical Office, Koraput)

Essential Qualifications : (i) At least second class Bachelor's degree in Aeronautical /Mechanical Engg. from a recognised university or equivalent, (ii) Four years' research, design, or development experience in aero-gas turbine engine components.

Desirable Qualifications: Master's degree in Aeronautical/Mechanical Engg.

Item No. 14 —Physics/Polymer Chemistry —1 Post (Defence Research and Development Laboratory, Hyderabad)

Essential Qualifications: (i) At least second class Master's degree in Physics/Chemistry/Polymer Chemistry from a recognised university or equivalent, (ii) Four years' research and development experience in the area of fibre reinforced plastics with special reference to carbon reinforced plastics or carbon—carbon composites.

Desirable Qualifications : M.Tech./Ph.D. degree in Physics/Chemistry/Polymer Chemistry.

(Those who have applied for this post in response to our earlier advertisement No. 012/RAC/87 published in Employment News and various newspapers in July 1987 need not apply again as their previous applications will be considered provided they meet these requirements).

Item No. 15— 1 Post—Electrical/Electronics Engg—(Naval Science and Technological Laboratory, Vishakhapatnam)

Essential Qualifications: (i) At least second class Bachelor's degree in Electrical/Electronic Engg. with specialisation in Control Engg., (ii) Four years' research and development experience in Electrical/Electronic Control Systems.

Desirable Qualifications: Master's/Ph.D degree in Electrical/Electronic Engg.

Item No. 16 —Electronics/Computer Engg. —1 Post —Centre for Aeronautical Systems Studies and Analysis, Bangalore)

Essential Qualifications: (i) At least second class Bachelor's degree in Electronics/Electronics and Communications Engg./Computer Engg. from a recognised university or equivalent, (ii) Four years' research and development experience in avionics/air-borne radar systems or modelling and simulation of avionics/radars/communications systems.

Desirable Qualifications: (i) Master's/Ph.D degree in Electronics/Electronics and Communications Engg/ Computer Engg. (ii) sound knowledge of radar systems, radar signal processing and simulation on digital computers, (iii) Working knowledge of simulation languages.

(E) Scientists 'B' —(Rs. 2200-4000) —48 Posts (UR-25, SC-15, ST-8)

Item No. 17 —Physics/Nuclear Physics —3 Posts —(UR-2, ST-1) (DGMS)

Essential Qualifications : At least second class Master's degree in Physics/Nuclear Physics with diploma in radiation protection/therapy from a recognised university or equivalent.

Desirable Qualifications: Working experience in the field of Radiation Physics as applied to nuclear medicine and handling of nuclear medicine instrumentation.

Item No. 18 —Electronics Engineering —25 Posts —(UR-13, SC-10, ST-2)

Essential Qualifications: At least second class Bachelor's degree in Electronics Engg. from a recognised university or equivalent.

Desirable Qualifications: Master's degree in Electronics Engg.

Item No. 19 —Mechanical Engineering —4 Posts—(UR-2, SC-1, ST-1)

Essential Qualifications: At least second class Bachelor's degree in Mechanical Engg. from a recognised university or equivalent.

Desirable Qualifications: Master's degree in Mechanical Engg.

Item No. 20 —Aeronautical Engineering —5 Posts —(UR-3, SC-1, ST-1)

Essential Qualifications: At least second class Bachelor's degree in Aeronautical Engineering from a recognised university or equivalent.

Desirable Qualifications: Master's degree in Aeronautical Engg.

Item No. 21 —Computer Science —3 Posts —(SC-2, ST-1)

Essential Qualifications: At least second class Bachelor's degree in Computer Engineering from a recognised university or equivalent.

Desirable Qualifications: Master's degree in Computer Engineering.

Item No. 22 —Physics —1 Post (Reserved for ST)

Essential Qualifications: At least second class Master's degree in Physics from a recognised university or equivalent.

Desirable Qualifications: Ph.D degree in Infra-red Physics or in Remote-Sensing.

Item No. 23 —Applied Chemistry —1 Post—(UR)

Essential Qualifications: At least second class Master's degree in Applied Chemistry from a recognised university or equivalent.

Desirable Qualifications: (i) Ph.D degree in Applied Chemistry, (ii) Working experience in desalination using reverse osmosis technology.

Item No. 24 —Library Science/Documentation —3 Posts (UR-1, SC-1, ST-1)

Essential Qualifications: (i) At least second class Master's degree in science subjects including Mathematics or second class Bachelor' degree in Engineering or Technology from a recognised university or equivalent, (ii) Post-graduate degree or diploma in Library Science/ Associateship of INSDOC/DRTC/M.Lib/B.Lib Science from a recognised university or equivalent.

Item No. 25 —Applied Mathematics —1 Post (UR)

Essential Qualifications: At least second class Master's degree in Applied Mathematics with specialisation in Fluid Mechanics.

Desirable Qualifications: (i) Ph.D. degree in Fluid Mechanics, (ii) Working experience in mainframe/ mini-computers.

Item No. 26 —Civil Engineering —1 Post —(UR)

Essential Qualifications: At least second class Bachelor's degree in Civil Engineering from a recognised university or equivalent.

Desirable Qualifications: (i) Master's degree in Civil Engg., (ii) two years' experience in planning and execution of civil works.

Item No. 27—Geology—1 Post—(UR)

Essential Qualifications—At least second class Master's degree in Geology from a recognised university or equivalent.

Desirable Qualifications—(i) M. Tech/Ph. D. degree in Geology, (ii) Working experience in geological surveys.

GENERAL CONDITIONS

1. **Promotion Prospects :** DRDO offers excellent opportunities for career advancement as Scientists. Result-oriented motivated scientists can look forward to promotions to following grades of scientists :

Scientist "B" : Rs. 2200-4000, Scientist "C" : Rs. 3000-4500, Scientist "D" : Rs. 3700-5000, Scientist "E" : Rs. 4500-5700, Scientist "F" : Rs. 5100-6300, Scientist "G" : Rs. 5900-7300.

2. **Age Limits :** For Scientist "B" not exceeding 28 years, (ii) For Scientist "C" not exceeding 35 years, (iii) For Scientist "D" not exceeding 45 years, (iv) For Scientist "G" not exceeding 50 years.

3. **Method of Applying :** Neatly Type-written applications should be sent to Director, Recruitment & Assessment Centre, Lucknow Road, Timarpur, Delhi-110007, preferably by Registered cover, superscribed "Application for the post of Scientist"—Item No. on plain paper in the prescribed format (reproduced below) accompanied by a crossed non-refundable Postal Order of the value of Rs. 8/- drawn in favour of Senior Accounts Officer, Recruitment & Assessment Centre, DRDO, payable at New Delhi. There is no fee for SC/ST candidates. Last date of receipt of applications is **8th February 1988**. In respect of candidates from Andaman & Nicobar Islands, Lakshdweep and abroad, last date of receipt of applications is **22 February 1988.**

4. **Method of Selection :** A written test may be conducted for certain posts at selected places. No TA/ DA would be admissible for this purpose. Persons called for interview would be reimbursed actual train/bus fare by shortest route limited to second class rail fare from the normal place of residence to the place of interview.

5. Only Indian nationals need apply.

6. Candidates should send two self addressed unstamped envelopes of 23 x 10 cms alongwith the application.

7. One copy of recent passport size photograph should be pasted on right hand corner of the first page of application.

8. Attested copies of certificates / testimonials should be attached to the application form. Self attested copies will be accepted. NO ORIGINALS SHOULD BE FORWARDED.

9. Candidates will have to produce original certificates at the time of interview.

10. Incomplete applications or those received late will be rejected and no correspondence would be entertained in this regard.

11. In case SC/ST candidates are not available in requisite number, general candidates will be considered for the posts reserved for SC/ST.

12. Candidates working in Government/Public Sector Undertakings/Autonomous Organisations must apply through proper channel. They shall not be interviewed if they fail to produce a 'No Objection' Certificate from their employer at the time of interview.

13. Prescribed essential qualifications are the barest

minimum and mere possession of the same does not entitle any candidate to be called for interview.

14. Candidates desirous of applying for more than one post may apply separately for posts indicating Item No. of the posts.

15. Candidates on appointment will have the opportunity to carry out Ph. D. with external registration and may be sponsored for doing M. Tech.

16. Opportunities are also available for study leave for carrying out higher studies abroad.

17. DRDS Officers may be sponsored for training abroad.

18. Though initial place of posting is indicated against some of the posts, yet candidates have the liability to serve anywhere in India.

19. Handwritten applications will not be entertained.

20. Number of posts against each item is tentative and may vary.

21. All extra sheets used by the candidates MUST be duly authenticated by them.

22. Knowledge of French, German, Russian, Japanese, and Chinese is a desirable qualification for all posts.

Canvassing in any Form will Mean Disqualification.

APPLICATION FORMAT

APPLICATION FOR THE POST OF SCIENTIST

1. Advertisement No.
2. Item No.
3. Details of Postal Order(s)
   No., Date and Amount
4. Name in full (Shri/Smt/Km)
   (in block letters)
5. (a) Date of Birth :
   (In Christian era in figures)
   (b) Age as on 08 February 1988 :
6. Nationality :
7. Marital Status :
8. Father's Husband's Name :
9. (a) Address for Correspondence :
   (b) Permanent Address :
   (in block letters with Pin Code)
10. Nearest Railway Station :
11. Whether belong to SC/ST :
    (If yes, attach Certificate)
12. Educational Qualifications :

Affix passport size latest photograph

Sl No.	*Course Passed	University/ Institution/ Board	Year of Passing	Subjects taken	Result with Division/ Class

*In Chronological order from X standard (SSLC/ HS/HSC) onward

13. Professional Training :

Organisation	Period		Details of Training
	From	To	

14. Employment Record :

Name & address of the employer/ institution	Period of service		Designation of the post held	Scale of pay of each post	Detailed description of work	Reason for leaving
	from	to				

15. Present Basic Pay :
    Other allowances :
    Total emoluments :
16. (a) Are you a Govt. Servant
    (b) If yes, whether Central/State/UT
    (c) If not, whether employed in undertaking/autonomous body under Central/State Govt.
17. Minimum joining time required :
18. Resume of research work/experience, if any :
19. Number of papers published (enclose list) :
20. Field of special interest :
21. Are you under any contractual obligation to serve Central/State Govt./Any other public sector undertaking or Autonomous body and if so the details:
22. Details of relatives employed in DRDO:

Name of Relative	Relationship	Lab/Estt. in which employed	Post Held

23. Have you applied for any post in DRDO during the past two years ? If yes, give particulars :

Sl. No.	No. and Date of Advt.	Name of Post/ Discipline	Date of Interview	Remarks

24. Any other information you may wish to add:
    (use separate sheet if necessary)
25. Declaration :
    I declare that the foregoing information is correct and complete to the best of my knowledge and belief and nothing has been concealed/distorted. If at any time, I am found to have concealed/distorted any material information, my appointment shall be liable to summary termination with notice/compensation. I will, if and when required, take up duty in the discharge of government assignments anywhere in India.

Place :
Date : Signature of Candidate

davp 87/522

Agricultural Scientists Recruitment Board (ICAR)

KRISHI ANUSANDHAN BHAWAN, NEW DELHI-110012

Advt. No. 1/88

Applications are invited for the following posts in Agricultural Sciences and other fields under the different Research institutes and at the Headquarters of the Indian Council of Agricultural Research.

INDIAN VETERINARY RESEARCH INSTITUTE REGIONAL STATION, SRINAGAR (J & K)

1. Joint Director (S-5) (One post) Rs. 2000-2500 (Pre-revised) Age : Below 55 years.

Qualifications Essential : (i) Doctorate in any of the branches of Veterinary Parasitology/Veterinary Microbiology/Veterinary Pathology. (ii) At least 12 years' Research/Teaching experience at Postgraduate level of which 7 years' experience should be at least at S-3 level or equivalent pay including at least 3 years' as Director/Head of Division/Research Project Coordinator/Joint Director/ADG/Head of the Department or an equivalent post in a University in the Professor's scale. (The experience in research/teaching is to be reckoned from the date the candidate has completed his Master's Degree and will include the period, not exceeding 3 years, spent to obtain Doctorate Degree). (iii) A record of productive research in Animal Health as evidenced by published work.

CENTRAL INSTITUTE OF FRESHWATER AQUACULTURE, DHAULI

2. Director S-5 (One post) Rs. 2000-2500 (Pre-revised). Age : Below 55 years.

Qualifications Essential : (i) Doctorate in Zoology or any branch of fisheries. (ii) and (iii) as in Item No. 1 above.

CENTRAL TUBER CROPS RESEARCH INSTITUTE, TRIVANDRUM

3. Scientist S-2 (Agricultural Structures and Process Engineering) (One post) Rs. 1100-1600 (pre-revised). Age : Below 45 years.

Qualifications Essential : (i) Master's Degree in Agricultural Engineering with specialisation in crop processing (relaxable to Bachelor's Degree or an equivalent qualification in case of candidates with experience in Post harvest technology). (ii) At least 3 years' Research/Teaching experience in the Post harvest technology of crops for candidates possessing a Master's Degree and 5 years' for those having Bachelors' Degree or an equivalent qualification. Experience will count after the attainment of entry qualification to ARS.

SUGARCANE BREEDING INSTITUTE, COIMBATORE

4. Scientist S-2 (Plant Breeding) (Three posts) Rs. 1100-1600 (Pre-revised). Age : Below 45 years.

Qualifications Essential : (i) Doctorate in Plant Breeding/Agricultural Botany or Botany with specialisation in Plant Breeding (relaxable to Master's degree or an equivalent qualification in case of candidate with exceptionally distinguished record of productive research). (ii) At least 5 years' research/teaching experience at least Bachelor's Degree level for candidates possessing a Doctorate Degree (excluding the period spent for obtaining the Doctorate Degree) and 8 years' for those having a Master's Degree or an equivalent qualification.

ICAR RESEARCH COMPLEX FOR NEH REGION, SHILLONG

5. Scientist S-3 (Fish and Fishery Science) (One Post) Rs. 1500-2000 (Pre-revised). Age : Below 50 years.

Qualifications Essential : (i) Doctorate Degree in Zoology (fisheries)/Fish and Fishery Science or any related field (relaxable to Master's degree or an equivalent qualification in case of candidates with exceptionally distinguished record of productive research and responsible leadership of productive research programme in the relevant field). (ii) At least 7 years' experience of research/teaching at least at Bachelor's degree level for candidates possessing a Doctorate degree (excluding the period spent for obtaining the Doctorate degree) in fresh water fish culture breeding in Hill region or in cooler water temperate and subtemperate conditions and 10 years' for those having Master's degree or equivalent qualifications. Out of 7/10 years, at least 2 years' experience should be at S-2 or equivalent pay level.

6. Scientist S-2 (Livestock Production and Management) (One post) Rs. 1100-1600 (Pre-revised). Age :

Below 45 years at ICAR Research Complex for NEH Region, Sikkim Centre.

Qualifications Essential : (i) Doctorate in Livestock Production and Management (relaxable to Master's Degree or an equivalent qualification in case of candidates with exceptionally distinguished record of productive research). (ii) As in item 4 above.

7. Scientist S-2 (Agronomy) (One post) Rs. 1100-1600 (Pre-revised). Age : Below 45 years. Reserved for S.C. Candidate. Special allowances admissible to Scientist on posting to Tripura : (a) Special duty allowance and (b) special compensatory allowance as admissible under rules of ICAR.

Qualifications Essential : (i) Doctorate in Agronomy (Crop Production/Extension) (relaxable to Master's degree or an equivalent qualifications in case of candidates with exceptionally distinguished record of productive research). (ii) At least 5 years' research experience in crop production teaching/ extension experience at Bachelor's degree level for candidates possessing a Doctorate degree (excluding the period spent for obtaining the Doctorate degree) and 8 years' for those having a Master's degree or an equivalent qualification.

8. Scientist S-2 (Silviculture) (One post) Rs. 1100-1600 (Pre-revised) at Sikkim Centre under ICAR Research Complex for NEH Region, Shillong. Age : Below 45 years. Extra allowance and facilities admissible to Scientist on posting at Sikkim Centre. (a) Sikkim compensatory allowance @ 30% of basic pay subject to a maximum of Rs. 400/- per month. (b) Rent free accommodation.

Qualifications Essential : (i) Doctorate in Agricultural Science (relaxable to Master's degree or an equivalent qualification in case of candidates with exceptionally distinguished record of productive research). (ii) At least 5 years' research/teaching experience in any aspect of Silviculture/Silvipasture/ Agro-Forestry at least at Bachelor's degree level for candidates possessing a doctorate degree (excluding) the period spent for obtaining the Doctorate Degree) and 8 years' for those having a Master's degree or an equivalent qualification.

9. Scientist S-2 (Horticulture) (One post) Rs. 1100-1600 (Pre-revised). Age : Below 45 years, reserved for S.C. Candidate. Extra allowances admissible to Scientists on posting at Shillong. (a) Special duty allowance @ 25% of basic pay subject to a maximum of Rs. 400/- p.m. (b) Special compensatory allowance @ 5% of basic pay subject to a maximum of Rs. 50/- p.m.

Qualifications Essential : (i) Doctorate in Horticuture (relaxable to Master's degree or an equivalent qualification in case of candidates with exceptionally distinguished record of productive research). (ii) At least 5 years'/teaching experience in Horticulture at least at Bachelor's degree level for candidates possessing a Doctorate degree (excluding the period spent for obtaining Doctorate degree) and 8 years' for those having a Master's degree or an equivalent qualification.

10. Scientist S-2 (Agronomy) (One post) Rs. 1100-1600 (Prerevised) at Tripura Centre of ICAR Research Complex for NEH Region, Shillong. Age : Below 45 years. Extra Allowances admissible to Scientists on posting at Tripura (a) Special duty allowance and (b) Special compensatory allowance as admissible under rules.

Qualifications Essential : (i) Doctorate in Agronomy (relaxable to Master's degree or an equivalent qualification in case of candidates with exceptionally distinguished record of productive research). (ii) At least 5 years' research/teaching experience in the field at least at Bachelor's degree level for candidates possessing a Doctorate degree (excluding the period spent for obtaining the Doctorate degree) and 8 years' for those having a Master's degree or an equivalent qualification.

Central Soil and Water Conservation Research and Training Institute Dehradun

11. Scientist S-2 (Agronomy) (One post) Rs. 1100-1600 (Pre-revised). Age : Below 45 years. Reserved for S.T. Candidate.

Qualifications Essential : (i) Doctorate in Agronomy (relaxable to Master's degree or an equivalent equalification in case of candidates with exceptionally distinguished record of productive research). (ii) As in Item-No. 10 above.

12. Scientist S-2 (Forestry) (One post) Rs. 1100-1600 (Pre-revised) Age : Below 45 years. Reserved for S.C. Candidate.

Qualifications Essential : (i) Doctorate in Plant Science/Forestry (relaxable to Master's degree or an equivalent qualification in case of candidate with exceptionally distinguished record of productive research). (ii) As in Item No. 4 above.

Central Soil Salinity Research Institute, Karnal.

13. Scientist S-3 (Agronomy) (One post) Rs. 1500-2000 (Pre-revised). Age : Below 50 years.

Qualifications Essential : (i) Doctorate in Agronomy (relaxable to Master's degree or an equivalent qualification in case of candidates with exceptionally distinguished record of productive research and responsible leadership in the relevant field). (ii) At least 7 years' research/teaching experience at least at Bachelor's degree level for candidates possessing a Doctorate degree (excluding the period spent for obtaining the Doctorate degree) and 10 years' for those having a Master's degree or an equivalent qualification. Out of the 7/10 years, at least 2 years' experience should be at S-2 or equivalent pay level.

14. Scientist S-2 (Microbiology) (One post) Rs. 1100-1600 (Pre-revised). Age : Below 45 years at C.S.S.R.I., Karnal or its Research Station, Canning Town.

Qualifications Essential : (i) Doctorate in Soil Microbiology (relaxable to Master's degree or an equivalent qualification in case of candidates with exceptionally distinguished record of productive research). (ii) As in Items No. 10 above.

15. Scientist S-2 (Soil and Water Cons. Engg.) (One post) Rs. 1100-1600 (Pre-revised). Age : Below 45 years.

Qualifications Essential : (i) Master's degree in Agril. Engineering with specialisation in Soil and Water Conservation Engg. or Civil/Hydrology Engg. (relaxable to Bachelor's degree or an equivalent qualification in case of candidates with experience in the relevant field). (ii) At least 3 years' research/teaching experience in the relevant field for candidates possessing a Master's degree and 5 years' for those having a bachelor's degree or an equivalent qualification. Experience will count after the attainment of entry qualifications to A.R.S.

16. Scientist S-2 (Agriculture Economic) (One post) Rs. 1100-1600 (Pre-revised). Age : Below 45 years at CSSRI, Karnal or its Research Station.

Qualifications Essential : (i) Doctorate in Agril. Economics (relaxable to Master's degree or an equivalent qualifications in the case of candidates with exceptionally distinguished record of productive research). (ii) As in Item No. 10 above.

17. Scientist S-2 (Soil Physics-Soil and Water Cons.) (One post) Rs. 1100-1600 (Pre-revised) Age : Below 45 years at CSSRI Research Station in Gujarat.

Qualifications Essential : (i) Doctorate in Soil Physics/Soil Science (relaxable to Master's degree or an equivalent qualification in case of candidate with exceptionally distinguished record of productive research). (ii) As in item No. 10 above.

18. Scientsts S-2 (Soil and Water Cons. Engg.) (One post)Rs. 1100-1600 (Pre-revised). Age : Below 45 years at CSSRI Research Station in Gujarat. Reserved for S C. Candidate.

Qualification Essential : (i) Master's degree in Agril. Engineering with specialisation in Soil and Water Conservation Engg. or Civil/Hydrology Engg. (relaxable to Bachelor's Degree or an equivalent qualification in case of candidates with experience in the relevant field). (ii) As in Item No. 15 above.

19. Scientist S-2 (Plant Breeding) (One post) Rs. 1100-1600 (Pre-revised). Age : Below 45 years at CSSRI Research Station in Gujarat.

Qualification Essential : (i) Doctorate in Plant Breeding (relaxable to Master's degree or an equivalent qualification in case of candidates with exceptionally distinguished record of productive research). (ii) As in Item No. 10 above.

20. Scientist S-2 (Plant Physiology) (One post) Rs. 1100-1600 (Pre-revised). Age : Below 45 years at CSSRI Research Station in Gujarat.

Qualifications Essential : (i) Doctorate in Plant Physiology (relaxable to Master's degree or an equivalent qualification in case of candidates with exceptionally distinguished record of productive research). (ii) As in Item No. 10 above.

21. Scientist S-2 (Agronomy) One post) Rs. 1100-1600 (Pre-revised). Age : Below 45 years at CSSRI Research Station in Gujarat.

Qualifications Essential : (i) Doctorate in Agronomy (relaxable to Master's degree or an equivalent qualifications in case of candidates with exceptionally distinguished record of productive research). (ii) As in Item No. 10 above.

22. Scientist S-2 (Soil Physics & Soil & Water Cons). (One post) Rs. 1100-1600 (Pre-revised). Age: Below 45 years. Reserved for S.C. Candidate.

Qualifications Essential. (i) Doctorate in Soil Physics/Soil Science (relaxable to Master's degree or an equivalent qualification in case of candidates with exceptionally distinguished record of productive research). (ii) At least 5 years' experience of research/teaching at Bachelor's degree level in the field of water management and salinity and other allied subjects for candidates possessing a Doctorate degree (excluding the period spent for obtaining the Doctorate degree) and 8 years' for those having a Master's degree or an equivalent qualification.

Indian Institute of Soil Science, Bhopal

23. Scientist S-3 (Soil Physics & Soil Water Cons.) (One post) Rs. 1500-2000 (Pre-revised). Age: Below 50 years.

Qualifications Essential : (i) Doctorate in Soil Physics/Soil & Water Conservation (relaxable to Master's degree or an equivalent qualification in the case of candidates with exceptionally distinguished record of productive research and responsible leadership in the relevant field). (ii) As in Item No. 13 above.

24. Scientist S-3 (Soil Chemistry/Fertility/Microbiology) (Six posts) Rs. 1500-2000 (Pre-revised). Age: Below 50 years. Two posts reserved for S.C. and One post reserved for S.T. Candidates.

Qualifications Essential. (i) Doctorate in Soil Chemistry/Soil Fertility/Soil Microbiology (relaxable to Master's degree or an equivalent qualification in the case of candidates with exceptionally distinguished record of productive research and responsible leadership in the relevant field). (ii) As in Item No. 13 above.

25. Scientist S-2 (Soil Physics and Soil & Water Cons.) (One post) Rs. 1100-1600 (Pre-revised). Age: Below 45 years.

Qualifications Essential : (i) Doctorate in Soil Physics & Soil & Water Conservation (relaxable to Master's degree or an equivalent qualification in case of candidates with exceptionally distinguished record of productive research). (ii) As in Item No. 10 above.

26. Scientist S-2 (Soil Chemistry/Fertility/Microbiology) (Six posts) Rs. 1100-1600 (Pre-revised). Age: Below 45 years. Two posts reserved for S.C. Candidates.

Qualifications Essential : (i) Doctorate in Soil Chemistry/Soil Fertility/Soil Microbiology (relaxable to Master's degree or an equivalent qualification in case of candidates with exceptionally distinguished record or productive research). (ii) As in Item No. 10 above.

Central Institute of Agricultural Engineering, Bhopal

27. Scientist S-2 (Biochemistry) (One post) Rs. 1100-1600 (Pre-revised). Age: Below 45 years. Reserved for S.C. Candidate.

Qualifications Essential: (i) Doctorate degree in Food Science/Food Technology/Agricultural Biochemistry (relaxable to Master's degree or an equivalent qualification in case of candidates with exceptionally distinguished record of productive research). (ii) As in Item No. 10 above.

Central Institute for Research on Buffaloes, Hisar.

28. Scientist S-2 (Animal Nutrition) (One post) Rs. 1100-1600 (Pre-revised). Age: Below 45 years.

Qualifications Essential. (i) Doctorate in Animal Nutrition (relaxable to Master's degree or an equivalent qualification in case of candidates with exceptionally distinguished record of productive research). (ii) As in Item No. 10 above.

Jute Technological Research laboratories, Calcutta

29. Manager (Experimental Spinning & Weaving Mill) Technical T-7 (Workshop Staff) (One post) Rs. 1100-1600 (Pre-revised). Age: Below 45 years. Reserved for S.C. Candidate.

Qualifications Essential: (i) Degree in Textile Technology. (ii) Five years' experience in a Jute Mill of repute in Weaving.

Indian Agricultural Research Institute, New Delhi

30. Head, Photo Laboratory (T-7) (Photography staff) (One post) Rs. 1100-1600 (Pre-revised). Age: Below 45 years.

Qualifications Essential: (i) Sound General Education. (ii) At least 15 years' experience in a supervisory capacity in Photographic studio of repute with proficiency in all branches of Photography including news and colour Photography. (iii) Adequate knowledge of India's Agriculture & progress of planned development.

National Bureau of Plant Genetics Resources, New Delhi

31. Instrumentation Engineer (T-7) (One post) Rs. 1100-1600 (Pre-revised) Age: Below 45 years.

Qualifications Essential: (i) Three years' Diploma/Bachelor's degree in mechanical Instrumentation/Electrical Engineering. (ii) At least 5 years' experience of repairs, maintenance and installation work related to refrigeration, air-conditioning, Biological and analytical instruments in an organisation/workshop/factory of repute.

National Bureau of Animal Genetics Resources/National Institute of Animal Genetics, Karnal

32. Scientist S-3 (Animal Genetics & Breeding-Cytogenetics) (One post) Rs. 1500-2000 (Pre-revised). Age: Below 50 years.

Qualifications Essential: (i) Ph. D. degree in the discipline of Animal Genetics & Breeding Genetics with specialisation in Cytogenetics (relaxable to Master's degree or an equivalent qualifications in the case of candidates with exceptionally distinguished record of productive research and responsible leadership in relevant field). (ii) As in Item No. 13 above.

Indian Institute of Horticultural Research, Bangalore.

33. Scientist S-2 (Agril. Structure & Process Engg.) PHT (One post) Rs. 1100-1600 (Pre-revised). Age: Below 45 years.

Qualifications Essential: (i) Master's degree inAgril. Structures and Process Agril. Engg./Angg. with specialisation in any aspect of Post Harvest Technology (relaxable to Bachelor's degree or an equivalent qualification in case of candidates with experience in the Agril. Engg. on Post Harvest Technological aspects). (ii) At least 3 years' research experience in Post Harvest Engg. and Technology aspects packing, Transportation etc. for candidates possessing a Master's degree and 5 years' for those having a Bachelor's degree or an equivalent qualification. Experience will count after the attainment of entry qualifications to ARS.

Central Research Institute for Dryland Agriculture, Hyderabad

34. Scientist S-2 (Soil & Water Cons. Engg.) (One post) Rs. 1100-1600 (Pre-revised). Age: Below 45 years.

Qualifications Essential: (i) Master's degree in Soil & Water Conservation Engineering (relaxable to Bachelor's degree or an equivalent qualification in case of candidates with experience in the relevant field). (ii) As in Item No. 15 above.

Central Plantation Crops Research Institute, Kasaragod

35. Scientist/S-5 (Plant Pathology) (One post) Rs. 1100-1600 (Pre-revised). Age: Below 45 years.

Qualifications Essential: (i) Doctorate in Plant Pathology/Mycology (relaxable to Master's degree or an equivalent qualification in case of candidates with exceptionally distinguished record of productive research). (ii) As in Item No. 10 above.

Central Tobacco Research Institute, Rajahmundry

36. Scientist S-2 (Agronomy) (One post) Rs. 1100-1600 (Pre-revised). Age: Below 45 years. Reserved for S.C. Candidate.

Qualifications Essential: (i) Doctorate in agronomy (relaxable to M.Sc. Degree or an equivalent qualification in case of candidates with exceptionally distinguished record or productive research). (ii) As in Item No. 10 above.

National Bureau of Fish Genetic Resources, Allahabad

37. Scientist S-2 (Agricultural Statistics) (One post) Rs. 1100-1600 (Pre-revised). Age: Below 45 years. Reserved for S.T. Candidate.

Qualifications Essential: (i) Doctorate in Agricultural Statistics/Fisheries Statistics (relaxable to Master's degree or an equivalent qualification in case of candidates with exceptionally distinguished record of productive research in the relevant field). (ii) At least 5 years' experience of research/teaching at least at Bachelor's degree level in fisheries or animal statistics/ handling data pertaining to fisheries for candidates possessing a Doctorate degree (excluding the period spent for obtaining the Doctorate degree) and 8 years' for those having a Master's degree or an equivalent qualification.

Central Institute for Research on Goats, Makhdoom, P.O.Farah, Mathura

38. Scientist S-3 (Animal Gene. & Breeding/Animal Reproduction/Animal Physiology (One post) Rs. 1500-2000 (Pre-revised). Age: Below 50 years. Reserved for S.T. Candidate.

Qualifications Essential: (i) Doctorate in Animal Genetics & Breeding/Animal Reproduction/Animal Physiology (relaxable to Master's degree or an equivalent qualification in case of candidate with exceptionally distinguished record of productive research and responsible leadership in the relevant field). (ii) As in Item No. 13 above.

39. Scientist S-2 (Livestock Products Technology) (One post) Rs. 1100-1600 (Pre-revised). Age: Below 45 years.

Qualifications Essential ; (i) Doctorate in Livestock Products Technology with specialisation in meat science & technology (relaxable to Master's degree or an equivalent qualification in case of candidates with exceptionally distinguished record of productive research. (ii) As in Item No. 10 above.

40. Scientist S-2 (Agricultural Economics) (One post) Rs. 1100-1600 (Pre-revised). Age: Below 45 years. Reserved for S.T. Candidate.

Qualifications Essential: (i) Doctorate in Agricultural Economics/Economics (relaxable to Master's degree or equivalent qualifications in case of candidates with exceptionally distinguished record of productive research in relevant field). (ii) As in Item No. 10 above.

Closing Date for Receipt of Applications in Agricultural Scientists Recruitment Board Office is 17-2-1988.

(For candidates abroad and in the Andaman and Nicobar Islands, Lakshadweep, Minicoy and Amindivi Islands, State/Union Territories in the North Eostern Region, Ladakh Division of J&K State and Sikkim Last Date is 2.3.1988.

General Instructions :

1. For application forms, please write to the **Secretary, Agricultural Scientists Recruitment Board, Krishi Anusandhan Bhawan, Pusa, New Delhi-110012.** Request for forms must specify Advt. No. 1/88 Name of the Post and Item Number and should be accompanied by a self addressed unstamped envelope (23x10 cms. size).
2. Separate application with separate fee is required for each post.
3. Application forms complete in all respects should reach Office of the ASRB together with the Application Fee of Rs. 8/- (No fee for SC/ST candidates) in the form of Crossed Indian Postal Order drawn in favour of the Secretary, Indian Council of Agricultural Research by the closing date. Applications received after the closing date will not be entertained. In case a candidate anticipates delay in forwarding of his application through proper channel he must send an advance copy of the application alongwith the fee which must reach this office on or before the closing date.
4. Candidates abroad may apply on plain paper and send their applications together with an International Postal Order/Bank Draft covering the application fee drawn in the favour of the Secretary, Indian Council of agricultural Research so as to reach the office, of the ASRB by the closing date. In countries where regular commercial channels are not available the candidates can deposit the application fee in local currency with the Indian Missions/Posts abroad who in turn will issue on R.B.I. Draft in favour of Secretary, ICAR, New Delhi.
5. If suitable candidates belonging to SC/ST are not available for filing up the vacant scientific posts in a particular grade and discipline, the reservation will be transferred to another post/ posts in the same grade irrespective of the discipline to which it belongs. As such non-SC/ST candidates can also apply for scientific posts reserved for SC/ST. This would not be applicable in the case of Technical posts reserved for SC/ST.
6. Crucial date for determining the age limit of candidates for each post will be the closing date for receipt of applications from candidates in India. There will be no maximum age limit for ICAR Employees. Relaxation in age is allowed to SC/ST persons to the extent permissible under the rules.
7. The prescribed Essential Qualifications are minimum and possession of same does not entitle candidates to be called for interview. Where the number of applicants is large, the Board may restrict the number of candidates for interview to a reasonable limit on the basis of qualifications and experience higher than the minimum prescribed in the Advt.
8. T.A. will be admissible for those called for interview as per ICAR Rules.
9. If required, candidates must appear for personal interview.
10. Higher initial pay may be recommended by the ASRB for specially qualified and experienced candidates for all the posts.

davp 1020(8)87

CIVIL SERVICES FOR

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10. Indian Postal Service
11. Indian Civil Accounts Service
12. Indian Railway Traffic Service
13. Indian Railway Accounts Service
14. Indian Railway Personnel Service
15. Posts of Assistants Security Officer, in Railway Protection Force
16. Military Lands and Cantonments Service
17. Indian Information Service
18. Central Trade Service

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20. Railway Board Secretariat Service
21. Indian Foreign Service
22. Armed Forces Headquarters Civil Service
23. Customs' Appraisers' Service
24. Delhi and Andaman and Nicobar Islands Civil Service
25. Pondicherry Civil Service
26. Goa, Daman and Diu Civil Service
27. Delhi and Andaman and Nicobar Islands Police Service
28. Pondicherry Police Service
29. Goa, Daman and Diu Police Service
30. Posts of Assistant Commandant, in the Central Security Force

Last date for sending the applications to UPSC for the Combined Civil Services Examination 1988 is 1st February, 1988.

davp 87/503

Central Institute of English and Foreign Languages

HYDERABAD-500 007

Advertisement No. XIV/87

Applications on prescribed form are invited for the following posts in the Institute service so as to reach the undersigned on or before **1.2.1988**.

Sl. No.	Name of the Post with Scale of Pay	Department	No. of Posts
(1)	(2)	(3)	(4)
1.	Professor/Senior Fellow Rs. 1500-2500 (pre-revised)	Phonetics & Spoken English	One
2.	-do-	Linguistics & Contemporary English	Two (one-temporary)
3.	-do-	RTV & Cinematography	One
4.	-do-	Materials Production	One
5.	-do-	Arabic	One
6.	Reader/Fellow Rs. 1200-1900 (pre-revised)	Phonetics & Spoken English	One
7.	-do-	Methods	One
8.	-do-	English Literature	Two
9.	-do-	Materials Production	One
10.	-do-	RTV & Cinematography	Two
11.	-do-	Correspondence Courses	One
12.	-do-	German	One
13.	Lecturer/Associate Fellow Rs. 700-1600 (pre-revised).	Materials Production	One
14.	-do-	RTV & Cinematography	One
15.	-do-	Correspondence Courses	Two
16.	-do-	Evaluation	One
17.	-do-	French	One
18.	-do-	Regional Centre, Shillong	One
19.	-do-	Regional Centre, Lucknow	Two

Prescribed application forms and further details regarding qualifications etc. can be had from the Registrar, Central Institute of English and Foreign Languages, Hyderabad-500 007, by sending a postal order for Rs. 2/- (Ps. 50 for SC/ST candidates) with a self addressed envelope (10 x 20 cm.) duly stamped (Re.1.80 ps.) indicating the post which the applicant desires to apply for.

Candidates who had applied in response to the earlier notifications, for the posts listed at S. No. 1,2 and 3 need not apply again.

K. Jayashankar
REGISTRAR

UNIVERSITY OF NORTH BENGAL

No. F. 22/Advt./Estt./40 R-87

Dated : 29.12. 1987

Applications in prescribed forms are invited from Indian Citizens for the following posts :

1. Professor of Chemistry (Specialisation : Physical Chemistry) : Post one
2. Professor of History (Specialisation : Archaeology) : Post one
3. Reader in Sociology & Social Anthropology (Specialisation : Industrial/Urban Sociology) : Post one (Reserved for S.C.)
4. Reader in Philosophy (Lien bound but likely to be made permanent) : Post one
5. Lecturer in Sociology & Social Anthropology : Post one
6. Lecturer in Chemistry (Specialisation : Inorganic Chemistry—Lien bound but likely to be made permanent) : Post one
7. Lecturer at the University College of Law : Post one (Reserved for S.C.)
8. Lecturer in Commerce : Posts two

(a) For one post qualification : M. Com. (with specialisation : Personnel Management/Industrial and Labour Relations).

M.B.A. (with specialisation : Personnel Management).

M.A. (Econ) (with speciaiisation: Labour/Industrial Relations).

M.A. (Sociology), (with specialisation : Industrial Sociology). (Reserved for S.T.)

(b) For the second post qualification: with basic qualification M. Com./M.B.A./M.A. (Econ) with specialisation in Banking / International Trade / International Finance/Industrial Finance (Reserved for S C).

Scales of Pay : Professor : Rs. 1500-2500/-, Reader : Rs. 1200-1900/- and Lecturer : Rs. 700-1600/- respectively with other allowances and benefits as per University rules. Lecturer in Law : Rs. 700-1600/- with other allowances and benefits as per rules.

Qualifications : For Professors, Readers and Lecturers as prescribed by the University Grants Commission. Details of qualifications for Professors, Readers and Lecturers as also for the posts of Lecturer in Law may be obtained with application forms.

Choice of selection committee may not necessarily be confined to those who apply formally. No Application except in prescribed application forms will be considered.

Those who applied earlier for the post of Professor of Chemistry need not apply again as their cases will be considered.

Any candidate applying for more than one post shall send separate application for each post.

Prescribed application forms may be obtained from the office of the Registrar personally on payment of Rs. 5/- (Rs. 3/- for S.C./S.T.) in cash at the University Cash Counter or by sending a self addressed envelope of 25 x 13 cms. affixed with stamps worth Rs. 3/- accompanied by crossed I.P.O./Bank Draft of Rs. 5/- (Rs. 3/- for S.C./S.T.) in favour of the University of North Bengal. Filled in application forms (7 copies) along with one self addressed unstamped envelope must reach the office of the Registrar, P.O. North Bengal University, Dt. Darjeeling, Pin : 734430 on or before **20 2.1988.**

REGISTRAR

UNIVERSITY OF NORTH BENGAL

No. F. 22/Advt./Estt./2/R-88
Dated : 6 1.1988

Applications in prescribed forms are invited from Indian Citizens for the post of Systems Manager (One post) in the scale of pay of Rs. 1500-2000/- (scale likely to be revised) with other allowances and benefits as per University Rules.

Essential qualifications : M.Sc./M.Tech./M.C.A./Master in Computer Science and Applications with consistently good academic record (B+).

Desirable : Atleast 6 years experience in application Software development preferably in Systems Engineering consultancy and support activity in a responsible position in any medium/large installation. Good knowledge of high level languages and Assembler is essential. Ph.D. degree or publications in fields related to Computer Science & Applications.

Choice of selection committee may not necessarily be confined to those who apply formally. No application except in prescribed application forms will be considered.

Prescribed application forms may be obtained from the office of the Registrar personally on payment of Rs.5/- (Rs. 3/- for S.C./S.T.) in cash at the University Cash Counter or by sending a self addressed envelope of 25 x 13cms. affixed with stamps worth Rs. 3/- accompanied by crossed I.P.O./Bank Draft of Rs. 5/- (Rs. 3/- for S.C./S.T) in favour of the University of North Bengal. Filled in application forms (7 copies) along with one self addressed unstamped envelove must reach the office of the Registrar, P.O. North Bengal University, Dist. Darjeeling, Pin : 734430 on or before **20.2.1988.**

REGISTRAR

PANJAB UNIVERSITY
CHANDIGARH

DEPARTMENT OF GEOLOGY

Advertisement Notice

Applications are invited for the six posts of Junior Research Fellows, so as to reach the Chairman, Department of Geology, Panjab University, Chandigarh, along with postal order of Rs. 10/- latest by **10th February 1988**.

The value of the fellowship initially is Rs. 800/- p.m. (fixed)

Qualifications

M.Sc. (Geology) of a recognised University in the First or Second Division (with at least 55% marks, or at least 'B' Plus in the grade system).

The selected candidates will be assigned research problems by the Chairman of the Department, in the various disciplines of Geology, as per requirements of the Department.

Application forms, along with detailed qulifications can be obtained from the Cashier, Panjab University, Chandigarh, personally on payment of Rs. 2/- or by making a written request to the Assistant Registrar (Estt.-I), Panjab University, Chandigarh accompanied by a self addressed stamped (worth Rs. 3.40) envelope of 23 x 10 cms. and postal order of Rs. 2/- drawn in favour of the Registrar, Panjab University, Chandigarh.

Chairman
Department of Geology
Panjab University
Chandigarh-160014

MMG/5844

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University News

MONDAY, JANUARY 25, 1988

Rs. 1.50

C.F.T.R.I. MYSO

Dr. Shanker Dayal Sharma, Vice-President of India, delivering the convocation address at the Agra University. Others in the picture are (left to right) Prof. S.K. Agrawala, Vice-Chancellor, Justice R.S. Pathak and Shri M. Hidayatullah, former Vice-President of India.

OFFICE OF THE REGISTRAR

C.S. Azad University of Agri. & Technology

KANPUR-208 002.

COMMON ENTRANCE EXAMINATION—1988

(Pre-Veterinary Test/Pre-Agriculture Test/Pre-Home Science Test)

P.V.T. P.A.T. P.H.T.

The University will hold a Competitive Examination on May 21 & 22, 1988 at Kanpur, Mathura Bareilly, Varanasi, Faizabad and Gorakhpur Centres (For Pre-Home Science Test (P.H.T.) only Faizabad and Kanpur Centres) for selecting candidates for admission to the following programmes :

Programme	Duration	Minimum Eligibility Qualifications
(1) B.V. Sc. & A.H. (Veterinary Course) of C.S.A.U. at Vety. College, Mathura.	Five Years	Passed Intermediate Examination (10+2) in Science with Biology OR Agriculture OR any other Examination recognised as equivalent thereto.
(2) B.Sc. (Ag. & A.H.) (Agriculture Course) of C.S. Azad University of Agri. A Tech; Kanpur	Four Years	Passed Intermediate Examination (10+2) in Agriculture OR Science OR any other Examination recognised as equivalent thereto.
(3) B.Sc. (Ag.) (Agriculture Course) of N.D. University of Agri. & Tech; Faizabad.		
(4) B.Sc. (Home Science) (Home Science Course) of C.S. Azad Uni. of Agri. & Tech; Kanpur.	Four Years for Arts Students Three Years for Science Students	Passed Intermediate Examination (10+2) in Science OR Arts OR any other Examination recognised as equivalent thereto.
(5) B.Sc. (Home Science) (Home Science Course) of N.D. University of Agri. & Tech; Faizabad.		

Candidates who are appearing at the Intermediate Examination of 1988 may also apply but their admission will be subject to their passing the Intermediate Examination.

Candidates seeking admission should not be above 22 (Twenty two) years of Age on 1-7-1988 (First July, Nineteen hundred eighty eight). Upper age limit is relaxable by 3 (Three) years in case of S.C./S.T. & B.C. candidates.

A set of application form including Information Bulletin containing inter-alia syllabi and rules for the Common Entrance Examination can be had either from the office of the Registrars, C.S. Azad University of Agri. & Tech; Kanpur/N.D. University of Agri. & Tech., Kumargang, Faizabad OR from the Dean, College of Veterinary Science and Animal Husbandry, Mathura on cash payment of Rs. 10/- (Rs. Ten) only. Candidates desirous of getting the application form by post are advised to send to the Registrar, C.S. Azad University of Agri. & Technology, Kanpur—208 002.

A crossed Bank Draft for Rs. 18/- (Rs. Eighteen) only issued by the State Bank of India in favour of the **Comptroller, C.S. Azad University of Agri. & Technology, Kanpur** payable at State Bank of India, C.S. Azad University Branch, Kanpur (Code-3809).

The candidates should clearly mention their postal address at which the application is to be sent.

Complete application forms will be received in the office of the Registrar, C.S. Azad University of Agri. & Technology, Kanpur, latest by **March 15**, 1988. Application forms can also be received upto April 10, 1988 with additional late fee of Rs. 20/- (Rs. Twenty) only.

Incomplete application forms OR those received after the due date shall not be accepted.

The University will not be responsible for any postal delay on the part of the candidates in submitting the application forms after the due dates.

S.P. Tewari
REGISTRAR

adEnvoys

C. F. T. R. I., MY

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Editor :
SUTINDER SINGH

Evaluating Teacher Performance

V. Natarajan*

The concept of student evaluation of teachers has been more misconceived in the past. It is still not properly conceived in its perspective. In order to make the concept clear one must look at certain parameters like validity, relevance, acceptibility, objectivity, need and utility. The Mehrotra Committee considered three modes of evaluation of teachers :—

1. Evaluation by students/ex-students
2. Self appraisal by teachers; and
3. Evaluation by peers and heads of departments

Even though the evaluation of teachers' performance by students has been a well accepted practice in the Institutes of Technology and other technical institutions for a long time, this concept has not yet been extended to evaluation of teachers in other settings. One is certainly aware of the existence in our country of a wide complexity of institutions ranging from central universities, main stream affiliating universities (affiliating anything between ten to hundred colleges), single faculty universities, single campus universities, multi-campus universities and, of late, autonomous colleges. In each of these institutions teacher evaluation is to be interpreted in different ways since the variables involved are so different and as different persons have different ideas about the objectives, their evaluation is also likely to differ. Some of these variables can be understood in terms of sheer numbers; in terms of numbers of teachers, in terms of number of students, in terms of varied activities involved in teacher performance, in terms of colleges and institutions, in terms of quality of students admitted, in terms of library and laboratory facilities available, in terms of concept, need, objective, purpose and utility of teacher evaluation, and finally and most importantly, in terms of reliability and validity of such evaluation procedures.

Some of the arguments advanced in favour of teacher evaluation are :

(a) a data base objective assessment of teacher performance will enable the system to have a measure of accountability;

(b) an objective assessment of all the activities of a teacher will enable an appraisal of individual's strengths and weaknesses in order that certain remedial action will be suggested for overcoming weaknesses; and

(c) to evolve, on the basis of this appraisal and evaluation, a set of guidelines for future.

In regard to student evaluation of teachers the thrust given by the Research Cell of Association of Indian Universities is to get students' response to a series of actions, activities and jobs performed by the teacher in the classroom and outside in so far as they pertain to student interactions with the teacher and in this evaluation no judgement or assessment about the performance of the teacher by the students will be called for. Once the data from students is available it will be analysed by a group of experts to work out a summary of performance of the teachers as perceived by his own group of students, objectively data base

(*Continued on page 4*)

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* *Project Director (Examinations), Association of Indian Universities.*

GOVERNMENT IN EDUCATION

S. M. Israney*

Although universities have always been involved with governmental policies, the current publicness and politicization of higher education in India are unprecedented. Here, as almost everywhere else in the world, the cost of higher education has increasingly been paid by the government and there is a corresponding claim for accountability for these public funds. There is no facet of Indian higher education today that is not significantly influenced by government such as, enrolment, curriculum, faculty appointments and pay structure.

Academics' View

At the same time as the academic and political worlds interact, a sizeable gap widens between the attitudes of academics and politicians towards one another. Academics complain that

(a) Most politicians have a short-term time perspective. Often there is no continuity to policy making—programmes change from one legislative session to another, each year's committee chairperson moves on to another committee, and there are quick compromises on issues of great importance.

(b) Politicians are primarily concerned with their own narrow constituencies, and they seldom consider the broader public interest. They often tend to politicize issues and only view higher education in terms of political benefits and costs.

(c) Politicians are often not fully informed about higher education and seldom attempt to understand fully the complex issues.

Politicians' View

Politicians, on the other hand, often hold unfavourable views of academics. They complain that

(a) Academics do not understand the political process and make politicians' job more difficult.

(b) Academics are solely concerned with their own interests seeking more and more money, seldom have the information needed for policy decisions or the ability to communicate precisely and clearly, and pay only lip service to accountability.

Higher Education and State Government

In order to compare the current political norms, or conventional attitudes, effecting state higher education policy with those of the past, the Carnegie Commission on Higher Education suggested in 1986 four norms :

(a) **Low Responsiveness** : Responsiveness refers to the actions of state officials that correspond to the attitude of their constituencies, which may or may not be articulated. It should be added that other pressures on state officials—insufficient time and staff, the degree of interest in higher education, and the complexity of the issues—also promote non-involvement.

(b) **Passivity in Oversight** : In higher education, legislators generally seem to feel that it should be largely limited to budgetary matters and broad policy guidelines. This view is based on two reasons : First, on traditions of academic freedom and keeping policies out of higher education and, second, on a feeling that professional judgement is often required and that politicians are not really qualified in this regard. However, when some institutions are perceived to act irresponsibly and state officials feel forced to act, they indeed take action; however, they generllay prefer quiescence.

(c) **Deference to Professional Authority** : Higher education issues are often complex and require detailed knowledge. Little knowledge and lack of expertise leads legislators and other state officials to depend on those who appear to be knowledgeable, who are often self selected, executive agencies, state higher education boards ond committees and their chairpersons.

(d) **Preference for Favourable Comparisons** : This means that officials is one state are able to compare their higher education structures and activities favourably with those in other states.

Applying the above four norms to the states in India, it will not be difficult to say that during 1960s, more specially after Kothari Commission Report in 1966, the above norms have affected the interface between state officials and higher education. It was in the latter part of 1970s that the grant-in-aid formula was changed.

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A great increase in the appropriation of public funds for both operating and capital expenditures accompanied the expansion of the role of public sector in higher education. The existence of mass higher education, in terms of both students and public expenditure along with students activism beginning in 1970s, increased the political visibility of higher education and prompted calls for accountability.

However, respect for and confidence in the academic profession have lessened significantly among parents, students, and citizens as well as state officials in the last ten years. The declining economic value of a college degree and unemployment of vast majority of the educated, are only two of the contributing factors. New skepticism toward professional authority has had an important impact on the relation between colleges and state government. Experiencing serious fiscal stringencies, state officials have also shown a preference for setting priorities and for weighing the benefits and costs of competing programmes and interests. The preference for favourable comparison with other states has largely disappeared, and higher education has clearly lost whatever priority it had.

Given the current nature of state level budgetary politics, many observers believe that colleges and universities, both public and private, will ironically have to give up some of their individual authority in order for higher education as a whole to maintain its influence.

The growth of federal involvement in higher education is a second vitally important aspect of the changing policies of higher education.

Higher Education and the Central Govt.

According to the Constitution of India, Education is on the concurrent list. But the practice, higher education is conceived of as a central function, and the state government until recently had little or no direct concern with higher education. Many government programme administrators have been academics and leading scholars who have often assisted the government in allocating federal funds. Universities and their administrators are interested in building their organisations' size, financial condition, and reputation. Their faculties sought to control independent funds, expand their own research domain and reputation, attract good graduate students, and enjoy increased amenities. Therefore, the influence of central funds grew during and after 1970s. The result is what Edgar Litt (*Content and Context : Essays on College Education* McGraw Hill, 1973) calls "Public Vocational University", one that is supported by central funds and directed by governmental decisions.

Despite the increasing quantity of paper work, the rising cost of compliance with central regulations, and even a profound central influence, there is no national direction or plan for higher education.

Following ten years of efforts to improve access to higher education for low income students, pressures are mounting for greater assistance to middle income students. While there is some evidence to the contrary, middle class families in this period of economic pressure, are under an increasing strain in meeting the cost of college attendance. These pressures again raise questions about the degree of egalitarianism in Indian higher education and Indian society in general.

Policy Implications

It is a wellknown fact by now that more than two-third (70%) of the direct cost of higher education is now paid by the government. The principle of accontability at the state or central level suggests that it is not too much to ask that such funds be spent prudently, efficiently and effectively. Certain requirements are inherent in the categorical approach to funding public programmes. It seems only fair then to ask institutions of higher education to disclose their spending practices fully and honestly and treat consumers fairly. At the same time, educators have to be content with constantly changing reporting requirements. Clearly, there is ample evidence that the trend toward increased politicization and regulation of higher education must be reversed.

Practical Aspects

Government involvement in higher education will continue. Indeed, government support is essential to the continued development of higher education in the last decade of the present century. But institutions of higher education and the important societal interests that they represent can alter their limited role in government policymaking in three specific ways :

(1) First, the higher education community can help government officials understand the benefits of diversity. As one studies higher education in other industrialized nations, the pluralism and diversity of Indian higher education, as well as its strengths, become clear. To have the government of higher education dispersed among 23 states is an advantage. To have research universities and community colleges as well as private universities in such a 'system' promotes quality, innovation, and responsiveness. Comparative analyses reveal that a healthy private higher education sector is fundamentally important to the integrity of all Indian higher education. This long term understanding could substantially influence higher education policymaking in states.

(2) Second, the higher education community can articulate its own cause. It must propose alternative legislation, communicate clearly with politicians, and work to change regulations. No distasteful regulation should even be accepted as permanent, and accountability need not always be distasteful. Even more fundamentally, higher education must minimize its own conflicts in order to change the attitude of the public and politician and to eliminate their stereotype of academics. Academic aspect of the teachers' unions' must form an integral part of their programmes.

(3) Finally, higher educational institutions need fully to understand and to document the financial costs of regulation, specially central legislation, and to seek modification or reimbursement for them.

The expanding government role in higher education has shifted much higher educational policymaking authority to public officials. But the debate has only begun. A dynamic balance between autonomy and control in higher education has always been needed. Universities are already perhaps inherently, political institutions, and they are compelled to become even more political much against their will. Accordingly, autonomy will become an increasingly important and contested issue, specially in the light of the New Education Policy, which cannot deliver the goods, unless its implementation is made effective by widening the scope and autonomy of the university. ☐

Evaluating Teacher Performance

(Continued from page 1)

to build up over a period of three years rather than a single assessment by a particular group of students. Then a data base about the performance of the teacher is accumulated and this will serve to identify the strengths and weaknesses of the teacher. Even though it may be that certain strong points of teacher evaluation can be rewarded suitably no attempt should be made to punish for the weaknesses for the simple reason that most of the weaknesses arise out of extraneous factors and not certainly dependent on individual teacher. This will certainly lead to better acceptability by the teacher.

One of the most important aspects of teacher evaluation should be seen as a self-assessment. In the questionnaire that is prepared by Research Cell of Association of Indian Universities emphasis is given to self evaluation. In this the teacher is asked to respond to a series of activities performed by him for which there can be both direct and indirect evidence. This again over a period of time will enable not only a data base of activities undertaken by him but will also enable an assessment of a teacher's performance as perceived by him and acceptable to group evaluator. It is strongly felt that this aspect of self evaluation will, in the long run, be the only part acceptable. More so, when it correlates reasonably well with the other areas of evaluation by the teacher and evaluation by peers and heads of departments.

The third aspect of teacher evaluation is evaluation by peers and heads of departments. If this evaluation is made open and done periodically to enable the teachers to perform better, this can also be acceptable to the teachers.

A research project involving three parts of a questionnaire is currently on and it is hoped after studying the reactions of teachers and educational administrators, it will be possible to come out with definite, meaningful and useful guidelines for teacher evaluation. ☐

Our Educational Heritage

Hon'ble Dr. Shanker Dayal Sharma, Vice-President of India, delivered the Convocation Address at the Sixtieth Convocation of the Agra University. Delving deep into the traditions of education in India and its decline, Dr. Sharma observed, "Our educational system has for a long time, depended only on the English language as medium of instruction. Political and economic aspects of colonialism are no doubt, most powerful. But the most silent, yet the most serious of all the foreign influences is the linguistic colonialism. Any predominance of an alien language binds for ever the minds of men for generations. The semi-colonial character of the system of our education, is mostly responsible for blinding the eyes of our people to the values of Indian system of education." Excerpts

Convocation

Our Indian tradition is not a ostrich-like attitude, refusing to see and absorb the light of learning—around us—from different parts of the world. The whole world is a family. "VASUDHAIVA KUTUMBAKAM" is our ideal. In the words of Adi Sankara, "Swadesho-Bhuvanatrayam"—All the Three Worlds are our Motherland". At the same time, the acid-test of rational discrimination of what is right and what is wrong, should be applied. In the words of Kalidasa, Quote : "Puranamithyeva—No Saadhu Sarvam."

"Decide it not to be good, just because it is ours and ancient; Reject it not as bad, because it is foreign and modern".

In short, Kalidasa says, "All that is old, is not gold and all that is mod, is not bad." He concludes that for a healthy and happy system of education, a blending of both the old and the new is a must.

Until a few centuries ago, the entire system of Indian education was based on the 14 Works of Pramana. They comprise the 4 Vedas, 6 Vedangas, the Meemamsa, the Puranas, the Nyaya Sastras and Dharma Sastras. In addition to these Fourteen, four more worldly Vidyas namely, Ayurveda, Arthasastra, Dhanur Veda and Gandharva Veda were also considered as Vidya Sthanas. All told, these Ashtadasa Vidyas namely, these 18 systems, were considered very important for any man, to be considered educated in those days. It is not as if only in the hermitage-retreats of bearded Maharshees with matted rocks, these systems were imparted to desiring disciples amidst their forest dwellings ! These systems were the regular academic routine of many famous universities. The Chinese travellers Fahien and Huen Tsang, after visiting the Universities of Nalanda, Takshasila and Kanchipuram, particularly, recorded that the syllabus of even the Buddhist universities in ancient India consisted of the Chaturdasa Vidya or the 14 Works of Pramanas, in addition to the Buddhistic literature. Throughout South India, at several educational centres called Ghatika Sthanas or Vidya Sthanas, the Chaturdasa Vidyas were the compulsory curriculum. Copper plates of the 9th and 11th Centuries refer to several centres like Ashta Sahasra where the studies contained the same syllabus. It is strange that these are studied these days very much more outside India than in our own universities.

Technical training and job-orientation, are the bye-products of the Industrial Revolution. In our own country, the colonial clerical culture has so much enlarged white-collar employment, that ours is one of the very few countries, where the blue-collar employment and the white-collar services are more or less equally balanced in strength. We have in India about 10 million industrial workers equally matched in strength by an equal number of clerical cadres comprising government, semi-government employees, both Central and the State, as well as in the public sectors. But the objective of the Indian system of education was not merely "Udara Nimiththa" but to promote the development of the total personality of the individual.

The meaning and significance of Indian system of education are seldom appreciated by modern educationalists particularly within India. Our educational system has for a long time, depended only on the English language as medium of instruction. Political and economic aspects of colonialism are no doubt, most powerful. But the most silent, yet the most serious of all the foreign influences is the linguistic colonialism. Any predominance of an alien language binds forever the minds of men for generations. The semi-colonial character of the system of our education, is mostly responsible for blinding the eyes of our people to the values of Indian system of education.

The most outstanding quality of the ancient Indian educational system is humility, almost to the point of anonymity. Almost all our works of literature and fine arts have no known authors. The painters of Ajanta, the sculptors of Mahabalipuram and the Composers of Smritis and Srutis, have always remained anonymous. Years of research could ultimately discover only pseudonymous authors. Even when we have names like Panini and Patanjali, modern scholars believe that they are only Gotra names and not their personal names. Effacing the ego, was an all-time objective of the Indian educative system. I have given only a very few examples from the vast dictionary of Works of Ancient India, whose Creators have remained to this date unnamed. The humility of the Indian educators is such that they have never labelled anything as the ultimate or the final answer to any question on any subject. 'NETHI' is always the last line or the last word on any subject which means "This is not the last word".

The whole world knows the Indian origins of the very fundamentals of modern sciences. The so-called Arabic numerals are called Hindsa in Arabic itself, meaning "From India". The concept of the Zero and the decimal system are traced to the Indian thought. Ancient India produced most valuable treatises on Astronomy, Mathematics, Cosmology, Geography, Physiology and Medicine, Logic and Philology, Sculpture and Architecture, Music and Dance, on Grammar, Prosody and Linguistics, as well as Science of War including training of Elephants and Horses.

We should remind ourselves of the Vedic Maxim, "Aano Bhadraha Kratavo Yantu Vishwataha" let noble thoughts come from all sides". We should freely and frankly accept the ideas and thoughts of all countries and of all languages. Mahatma Gandhi told us to keep the windows of our home open to the winds of all countries but we should be careful that we are not swept off our feet. He thus emphasised the basic Indianness of our education.

An equally outstanding feature of the ancient Indian educational system is Adhyaatma Vichara. Because of this very basic character of an eternal spiritual quest, the Indian system of education is sometimes mistaken to be "Otherworldly". Whatever be the walk of life or the field of specialisation, be it the science of medicine, or the mechanics of war or the art of music or dance, the performer and the performance are always dedicated to the Divine. "Daivarpana Mastu" is the attitude of every author, of every educator, of every house-holder and of every student. There is no science without sublimity, and no education without enlightenment. A totally materialistic world is like the paper-flower. It may last longer but exists without natural fragrance and an inner potentiality to multiply its message. Unfortunately, our modern educational system is like this paper-flower. That is the reason why an increased emphasis is laid these days on non-formal education. A large number of books have emerged even from the West like the "Peasant Pedagogy" of Paulo Fraire. Another title is "Deschooling Society". Even in the West, very sensitive and highly intellectual people have got fed up with formal education. The Paper-Degrees and Diplomas have formalised the system so much that our whole society is swelling up with the educated unemployed. A peculiar situation arises therefrom; all the uneducated somehow seem to be employed all the time, and all the educated seem to be unemployed all the time. That is the reason why, an increasing tendency is noticed on the part of employers to prefer performance to mere qualifications.

L.L.D. Hony. Degree being conferred on former Vice-President of India, Mr. M. Hidayatullah, by the Vice-Chancellor, Prof. S.K. Agrawala.

Apart from the other two qualities of humility and faith, the third outstanding quality of Indian system of education is skill-development. Every individual is trained in particular skills useful to him and to the society. Only a self-reliant person can be complete personality of a "Whole-man". One's contribution to this world, should be more than proportionate to one's own receipts therefrom. The student is therefore, taught to be simple in his habits of food, life-style and living. We must use up as little as possible of "Chaya-Thoyam-Asanam-Vasanam" i e. of natural resources of roofing, water, food and clothing. The bowels of the Earth have to be preserved for posterity. A very vast depletion of these resources leads to environmental pollution and ecological imbalance. Such teaching and training again has been mistaken by modern intrepreters as almost a worship of poverty. Indian system of education teaches the student not to be unlimited in his wants but to be limitless only in thirst for knowledge. Such a system is based on an innate discipline which comes by cultivation of mind, not by an external imposition. Contrasting this for a moment with the happenings of any university campus today is an unpleasant lesson of our own making.

At the same time we have to concede the fact that certain degeneration and degradation of the Indian system did take place during periods of repeated foreign invasions. Particularly, during medieval period, the retrogression of our system was caused by undue obscurantism—almost a "planned withdrawal" by our teachers into their own domestic shell of insularity and isolation. Many systems of preventive and curative medicines, went out of our hands, because of hereditary secrecy. This decline of the Indian tradition is one of the important reasons for the dislike of the present generation to reintroduce it in the present-day system.

I am addressing these words more to the teachers of today than to the students and the youth. The elder generation has hardly realised the role and significance of a good teacher. They are mostly responsible for relegating to the background Guru-Sishya Paaramparya. The intense individual involvement and commitment between the teacher and the taught is so much missing in the classrooms and schools of today. In ancient India an eminent educator has always been known as the Acharya. The word 'Chara' means 'to move' or 'to march'. The march of times, the procession of events and the movement of men and matters is, therefore colled Charitha or Charitra. An Acharya is one who practises what he preaches—one who makes people "move" in the right direction. He becomes an example to be emulated both in precept and in practice both in "Achaara" and "Aacharana". He is an ideal practitioner of Achara-Anusthanas as well as Shastriya-Sampradayas.

All this has cast a special responsibility on all of us. To live up to the examples and expectations of the past and present, is an arduous task. The responsibility is that of the teacher and the taught alike. There is an increasing tendency on our part, to blame the youth and the student-world for all the ills of our system. I should like to humbly submit that the elder generation is always mostly responsible for the breeding and behaviour of the young. I recall an ancient Sanskrit proverb, **Sishya-Paapam Gurum Vrajet**—the master is responsible for the sins of the students. I have myself taught at several universities and was the Education Minister for more than 13 years in my State. May I humbly mention here that I did not have even a single strike either by the students or by the teachers during this entire period? The reason for this is not far to seek. I gave full respect to teachers and provided them with proper emoluments and facilities. I also followed in the footsteps of my great master Pandit Jawaharlal Nehru. Wherever he went, he was willing to learn from the young. Whatever be his otherwise busy schedule, he was always willing to listen to the student groups, sparing some time for them during his visits to any city in India or abroad. In fact, he was a student all his life and, therefore, he was eternally young in his spirits.

The greatest objective of University education is to instil into its alumni the quality of humility and an ever ready willingness to listen and learn. There is the well-known Sanskrit saying 'Vidya dadati Vinayam'. In Tamil the student is called Maanavan; meaning "one who has Maanbu" which means the quality of ennoblement which necessarily includes humility. To quote Shelley. "The more we study, the more we discover our ignorance". Most of our saints and scholars of our past, did not receive any formal education. Even within our own living memory, one of the finest products of the Calcutta University, Swami Vivekananda had to sit and learn at the feet of an illiterate master according to common concept, Shri Rama Krishna Paramhamsa. To quote from G.U. Pope's 'Translation of Thirukkural',

"As on the rich
Poor beggars wait'
To men untaught
The wise are great."

An old Tamil proverb says "What I have learnt is a handful of sand, what I have not, is the size of the world". Sir Isaac Newton, one of the greatest scientists of all times, proclaimed, "I am like a little school boy collecting little pebbles on the sea-shore, while the whole ocean of knowledge is waving before me." Such great masters have declared themselves quite undereducated. To the student, it is said, in our ancient texts, the entire trinity of gods appear before him in the name and the form of his teacher. The Guru is really the Parabrahma during the period of his education. To quote,

Gurur Brahma Gurur Vishnuh
Gurur Devo Mahesvarah
Gurur Sakshat Param Brahma
Tasmai Sri Gurave Namah

It should be the spirit of relationship between the teacher and the taught. The word "Guru" means "one who leads you from darkness unto light."

Today, nearly half of the population of India are below 40-years of age. Most of them are born after the Swaraj. They have no memories of the British Raj and the Freedom Movement. They have no patience with the repeated tales of the sufferings, sorrows and sacrifices of the earlier generation. They have not passed through the World Wars and the Great Depression. They have not witnessed the gruesome real-life scenes of plague and famine. For most of them, Jallianwala Bagh, Chauri-Chaura, Champaran, Bardoli, Vaikom and Dandi, are mere place names in the atlas. It is the fault of the elder generation and the educational system we have devised. If we do not bridge this generation gap right now, the next generation would be further removed from their own basic national and cultural moorings.

The aim and objective of all education is to maintain, sustain and develop a healthy mind in a healthy body. Co-curricular and extra-curricular activities have as much place in our system as the curriculum and the syllabus. The lack of such activities is the reason for the growing evils of habitual smoking, drinking and drug addiction fast growing amidst our student community. Here again, we are responsible for creating such an atmosphere of psychological apathy, isolation and alienation leading to such unhealthy practices spreading like wild fire, amidst the youth today. To quote, Mahatma Gandhi, "Innocent youth is a priceless possession not to be squandered away for the sake of momentary excitement, miscalled pleasure". Every effort within our budget and every step within our capacity, should be undertaken to save the innocent youth for their own future.

The foremost feature of our educational system should be to train the youth to see the good in every human being and to take the best out of each individual's potential. In our secular polity, different religions have a position of great relevance in the structuring of character and personality. I would like to quote the first President of India Dr. Rajendra Prasad's thoughts—which he had put down in his Address for the Convocation of Patna University on February 28, 1963—an address which he could not deliver himself as he passed away on that day. His words I feel are of startling relevance and I regard them as his parting message to the youth of our country: "I have drawn attention to the absence of arrangement for giving a moral bias to our system of education. As we have different religions prevalent in the country, naturally it is not possible for the state to give encouragement to any particular religion, and, therefore, our state is a secular state. It should not be understood, however, that it is necessarily a godless state or an amoral state. What is really meant is that all religions are given equal status and

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Overseas Research Students Awards 1988

Around 800 new ORS Awards will be offered on competitive basis in 1988 to overseas post-graduate students of outstanding merit and research potential to pursue research at universities and colleges in the United Kingdom. The awards are intended to cover the difference between the tuition fee for a home postgraduate student and the "Full Cost" fee chargeable to an overseas postgraduate student. Awards are open to overseas graduate students who in session 1988-89 are commencing full time studies as a registered research student and who must be liable to pay tuition fee at the "Full Cost" rate for overseas students.

The only criteria for the awards are outstanding merit and research potential; other factors, such as, means, nationality, proposed field and institution of study, will not be taken into account. The awards are made to individuals and not to academic institutions, and may be held in any field of study. Subject to satisfactory progress of the award holders, they will be renewed for a second and third year according to the normal or remaining length of the research course being undertaken.

The scheme is administered by the Committee of Vice-Chancellors and Principals of Universities of United Kingdom through a special committee comprising senior members of academic staff of academic institution. Further details and application forms may be obtained from the Registrar or Secretary of any of the universities and colleges in the United Kingdom.

no preference is to be shown to anyone of them on account of its being the religion of a particular community, whether large or small. But that does not exclude inculcation of those fundamental principles on which rest right and wrong and which are acceptable to all religions. In fact the cult of disbelief in any religion should not be inculcated among our young people. This has been one of the crying needs and today for various reasons which need not be enumerated here we hear of a certain decline in the moral standards of a large number of our people." It would be pertinent to note that education literally means "Taking out" from the Latin word "Edu-care". Education is not injection or injunction. It is not indoctrination of views and ideas or just an imposition of one's views upon others. In short, education should not be an infliction. The moment education becomes such an infliction, the consequence will be, student-indiscipline, strikes and agitations within the campus. Thiruvalluvar mentions, "Functioning eyes belong to those who are educated. The rest are blind". Writing and arithmetic are considered in Tamil literature as the right eye and the left eye of all education. Initiation of the youth into education is called in Sanskrit as "Upa-Nayana", the second sight. Knowledge is called the "Third Eye" in many systems of philosophy. The real education is described in a famous Tamil work as follows:

> "That which is not destroyed by fire,
> Not sub-merged by flood,
> Not parched up by famine,
> Not swallowed by earthquake,
> Not wiped off by epidemics,
> Not shaken by explosions,
> Not stolen by thieves,
> Is preserved for ever,
> Only in our minds and memories".

We have to search our own conscience and say whether our education system fulfils the above standards. Unfortunately, the system as it has developed, has certain major weaknesses. For instance, it still continues to be dominated by models and value systems of the colonial regime; it lays emphasis on narrow individualism, verbal fluency especially in English, unhealthy competition to the neglect of social good, and mere acquisition of information, while neglecting such other social objectives as cooperation, manual work, skill-development and character-building. In short, as the University Grants Commission points out, it places an almost exclusive emphasis on "formal schooling" with its single-point entry, annual system of examinations and promotions, insistence on full-time attendance and exclusive use of full-time teachers. It neglects both non-formal and recurrent education. The educational institutions function in isolation from one another and from the community as a whole. It is also true that the upper and middle classes are the main beneficiaries of this system.

The role of the University system, as it ought to develop in future, has engaged the attention of the University Grants Commission. The system must inculcate and promote basic human values. It must preserve and foster our great cultural traditions and blend them with essential elements from other cultures and peoples. It must promote a rational outlook and scientific temper. It must enrich the Indian languages and promote their use as important means of communication on national development and unity. It must promote the development of the total personality of the students and inculcate in them a commitment to society. It must not only act as an objective critic of society, but also contribute to the improvement of the entire educational system. □

Recent Publications

1. Handbook of Medical Education-1987	:	Rs. 45.00
2. Monograph on Sample Free Item Analysis	:	Rs. 50.00
3. Bibliography of Doctoral Dissertations in Social Sciences & Humanities 1983-84	:	Rs. 180.00
4. Educational Statistics at a Glance	:	Rs. 75.00
5. Education and Economic Development	:	Rs. 25.00

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CALENDAR OF EVENTS

Proposed Dates of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
February 7-9, 1988	Mapcost Symposium on Indian Studies on Chrysomelidae and Bruchidae	To discuss different aspects of study of Chrysomelidae and Bruchidae insects.	Govt. Arts and Science College, Durg (M.P.).	The Secretary, Mapcost Symposium, Govt. Arts and Science College, Durg-491001 (M.P.)
February 10-14, 1988	Workshop on Science and Technology	To initiate a dialogue for the interaction of the Government, industry, institutes and to update the present technology.	Department of Astronomy & Space Sciences, Punjabi University in collaboration with the Punjab State Council of Science & Technology.	Prof. H.S. Gurm, Director, Department of Astronomy & Space Sciences, Punjabi University, Patiala-147002
February 18-20, 1988	Dalit Literature	To review and reassess the role and relevance of Dalit Literature in building an alternative perspective on Indian social, political and cultural life.	Centre for Soical, Studies, South, Gujarat University, Surat	Prof. S.P. Punalekar, Centre for Social, Studies, South Gujarat University, Surat-395007
February 19-21, 1988	Conference on Ecology and Environment	To identify and define various issues relating to Ecology and Environment and evolve Strategies to meet the challenges of ecological imbalance, environmental pollution, etc.	Mugra—Gagan, Hingoli—Sponsored by the Department of Science and Technology, Govt. of India, and supported by Marathwada University, Aurangabad.	Prof. Vasant Purohit, Director, Ecology and Environment Conference, Saket, 6 Shri Saikripa Colony, Shiwaji Nagar, Hingoli-431 513
February 20-21, 1988	**National Seminar on Interaction between Institutions and Industries through Science and Technology Entrepreneurs' Parks**	**To provide a forum of young entrepreneurs, industrialists, scientists and educationists to deliberate on the vital issues of Industry-Institution interaction.**	**STEP, Roorkee and University of Roorkee, Roorkee.**	**Prof. M.P. Jain, Organising Secretary, National Seminar IIISTEP, Office of the DRIL, University of Roorkee, Roorkee-247667**
March 10-12 1988	Nationalism : Problems and Challenge	To discuss different aspects of the development of nationalities during 19-20th centuries and their relationship with Indian nationalism.	Centre for Social Studies, South Gujarat University, Surat in collaboration with K.M. Munshi Centenary Committee, Gandhinagar.	Prof. Ghanshyam Shah, Centre for Social Studies, South Gujarat University, Surat-395007
July, 12-14 1988	**International Symposium on Recent Advances in Male Reproduction**	**The Symposium will focus on Molecular Biology of Inhibin, Androgen Binding, Protein Regulation of Fertility, Peptides in Testis Function and Steroidogenesis in Testis**	**University of Hyderabad in collaboration with the Indian Society of Andrology**	**Prof. P.R.K. Reddy, School of Life Sciences, University of Hyderabad, Hyderabad 500134**
September 26-28 1988	**International Conference on Welding Technology in Developing Countries**	**To provide an opportunity to scientists and technologists from developing and advanced countries to share their experiences in the area of Welding Technology.**	**University of Roorkee, Roorkee.**	**Prof. P.C. Gupta, Organising Secretary, International Conference on Welding Technology in Developing Countries, Department of Mech. & Ind. Engg., University of Roorkee, Roorkee—247667**

National Council for Higher Education

In implementation of the New Education Policy a National Council for Higher Education is proposed to be set up under the chairmanship of the Prime Minister Shri Rajiv Gandhi. The Council is expected to start functioning from the financial year 1988-89.

The proposed Council will oversee the development of higher education and advise the Government on resource allocations to different educational systems. It will also promote collaborative programmes of higher education and research among various institutions and between technical institutions and industry.

The Council will ensure sharing of common facilities and research data among various technical institutions to improve the standard of higher education keeping in view the present and future needs of the country.

The Council will have 20 members. It will have an independent Secretariat which will have a 10-member executive board functioning under the chairmanship of the Minister for Human Resource Development.

The members will include the Ministers for Human Resource Development, Agriculture, Health and Family Welfare and Ministers of State for Education and Culture and Science and Technology. It will also include the Deputy Chairman of the Planning Commission, Secretaries in the Department of Education, Agriculture, Health and Science and Technoloy. The Chairmen of the University Grants Commission, All-India Council for Technical Education and the Indian Council for Agricultural Research, the Vice-Chancellor of the Indira Gandhi National Open University will also be members of the Council.

IGNOU's Graduation Programme

The Indira Gandhi National Open University (IGNOU) is reported to have decided to admianother 10,000 candidates comprising students who have passed the 10 plus 2 courses in schools and colleges, to its bachelor's degree programmes from the next academic session. Candidates in the 10 plus 2 course examinations whose results will be declared this year will a lso be admitted on merit.

Longowal Instt. of Engg and Tech

The Government proposes to set up an Institute of Engineering and Technology in Punjab in the memory of late Sant Longowal. To be known as Longowal Institute of Engg. and Technology, it will be fully financed by the Central Government and registered as an autonomous body under the Societies Registration Act.

Initially, 10 certificate and diploma level courses will be started from the 1988-89 academic year. Later, degree and postgraduate courses will be introduced. An expert committee has been set up by the Human Resource Development Ministry to work out the details and identify the various technical courses to be started.

Degree Course in Maritime Training

The University of Bombay is reported to have agreed to conduct a three-year degree course for providing maritime training for seamen. The course will replace the present two-year course in nautical training. The ship T. S. Rajendra which has given pre-sea training to 5084 personnel so far would be utilized for the degree course training.

The marine academy being constructed at Karwe, New Bombay, would be the training centre for seamen and it would be the first of its kind in India. The construction of the academy is expected to be completed by 1992.

IIT for Assam

An Indian Institute of Technology (IIT) is proposed to be set up near Misa in Nagaon district, Assam. This will be the sixth IIT in the country. According to Human Resource Development Ministry a Bill for the amendment of the IIT Act is proposed to be introduced in the budget session of Parliament.

The proposed institute would offer courses in various fields of engineering and technology at the undergraduate and postgraduate levels.

Orientation-cum-Refresher Programme

The Rajendra Agricultural University has, for the first time, started an internal orientation-cum-refresher programme for its own teachers particularly in pedagogy and various facets of Resident Instructions. The programme is of three days duration and aims at covering all the teachers of the University in phases. Each group will consist of 30 teachers drawn from all cadres. The main aspects covered are curriculum planning, regulations on resident instructions, advisory system, tenpoint grading system, methods of setting objective questions and evaluation and guidance of P.G. research work.

School of Behavioural Sciences

The Bhopal University has set up a School of Behavioural Sciences and Economics as a Centre of Excellence. Set up with the assistance of the State Government, the School includes three interdisciplinary departments, viz, Regional Planning, Sociology and Psychology.

Inter-University National Youth Festival

The Amravati University in collaboration with Punjabrao Krishi Vidyapeeth, Akola is organising the Inter-University National Youth Festival from 25th to 29th January, 1988 at Akola under the auspices of the Association of Indian Universities, New Delhi. 600 to 700 students from all over the country representing various universities are expected to take part in the various cultural activities.

Aquaculture Seminar

The Department of Zoology, Nagarjuna University, organised a national seminar on fresh water aquaculture in India. Sponsored by the University Grants Commission, the seminar was inaugurated by Prof. G.J.V. Raju, Vice-Chancellor of the University. In his address Prof. Raju said that aquaculture was fast developing and its production was more profitable than agriculture. He said that a great competition had started between aquaculture and agriculture in the country, as the two were important export products, unlike horticulture and others.

He said that it was essential to develop aquaculture to meet the growing demands of the present day world. He said that India had great potential to develop aquaculture and added that since past few years our country has achieved great development in this field.

Though aquaculture may not be a solution to all problems, it would definitely solve food problem and provide financial assistance.

Spanish Honour for Prof. Dey

The Government of Spain has honoured an Indian Academician, Prof. Susnigdha Dey with the decoration of the rank of Commander of the Order of Civil Merit for his contributions to Hispanic studies. Prof. Dey, Chairman of the Centre of Spanish Studies at the Jawaharlal Nehru University, is the first Indian scholar having been so honoured by the Government of Spain. Presenting this award to Prof. Dey, the Ambassador of Spain to India, H.E. Mr. Carlos Fernandez Espeso said that his Government was indebted to Prof. Dey for his interest in Spanish culture to which he has dedicated many fruitful years of his life. He said it was an honour for Spain to have such an outstanding academic personality devoted to this area of study.

News from Agril. Varsities

New Field Peas Variety

The scientists of the Department of Plant Breeding, Haryana Agricultural University have evolved a new variety of field peas APARNA (HFP 4), a leafless type which can give as high yield as 35 quintals per hectare as compared to 16-17 quintals per hectare of earlier evolved variety-T 163. It is a medium dwarf genotype with high podding potential. Due to late start of podding, it escapes frost damage but matures in time. Aparna is tolerant to powdery mildew, a most prevalent disease of field peas. The plants grow erect but can spread if there is space. Through this variety, the scientists expect a considerable increase in area/production of field peas during the next few years. In about 30 field trials conducted at farmer's fields during last two rabi seasons, the variety has given an average of 26 quintals of grain yield per hectare. The Haryana State Seed Sub Commit-

Education News Index

The AIU Library receives about 20 daily newspapers from all parts of the country. The Library operates a press clipping service for its readers. To share this information with a wider readership, it has been decided that effective February 1988 a new column, Education News Index be launched in the *University News*. Appearing every second issue of the month, Education News Index will list articles and editorials pertaining to higher education that appear in daily press during the preceding month. It need hardly be emphasised that these articles and editorials serve as an important research resource. We hope our readers will welcome this new feature.

tee and Central Variety Release Committee have approved its release for cultivation in irrigated areas of Haryana.

Rs. 1.5 cr ICAR Grant for PAU

Dr. N.S. Randhawa, Director-General of the Indian Council of Agricultural Research (ICAR), said that Rs. 1.5 crore would be provided to the Punjab Agricultural University (PAU) for setting up a research station in the agriculturally backward region of Mand. Krishi Vigyan Kendras (Agriculture Research Stations) would gradually be set up in each district of the State. Dr. Randhawa was addressing members of the Punjab Kisan Club and the faculty of the PAU in Ludhiana recently. He said that since the number of small farmers was on the increase they should be persuaded to adopt skills like mushroom growing and bee-keeping.

Dr. Sukhdev Singh, Vice-Chancellor of PAU, while presiding over the function, said that quick adoption of new farm technology by the farmers coupled with assured irrigation and mechanisation were the real factors behind the green revolution.

Dr. Khem Singh Gill, Director of Extension Education, PAU, said that specialised training courses had been started to educate orchard workers on pruning and care of fruit plants.

Soviet Delegation at HAU

A Soviet Delegation headed by Prof. Gumerov, Vice-President of the Indo-Soviet Friendship Society, U.S.S.R. and Chairman of the Society's branch in Bashkiria paid a one day visit to Haryana Agricultural University recently. The visiting Russians were taken to the Vet. Clinics and the Museum of Agriculture College where the scientists explained to them the progress that the university had made in the field of veterinary surgery and also the work being done on the research achievements. The delegation also had a meeting with the Vice-Chancellor, Dr. Har Swarup Singh, in which the Vice-Chancellor explained to them the administrative set-up of the University.

News from Abroad

Continued Support for U.N. University Programme

The James S. McDonnel Foundation of St. Louis, Missouri, has granted $ 316,661 to the U.N. University for continued support of the James S. McDonnel Distinguished Scholars Programme at the World Institute for Development Economics Research (WIDER). In this programme distinguished economists and other scholars are invited to spend some time in residence at WIDER, normally during the summer months.

The James S. McDonnel Distinguished Scholars Programme contributes towards establishing WIDER as a centre of excellence for research diverse fields as well as in enabling scholars at the highest professional level to pursue their individual research.

Sports News

Varsities Volleyball Team

Baldev Singh, of Kurukshetra University has been named the Captain of the twelve-member Indian Universities Volleyball team which will be participating in the Federation Cup Volleyball Tournament scheduled to the held at Dariba Mines, Udaipur from 2nd to 9th February, 1988. Other members of the team are: Binu Jose (Kerala); Sanjay Sharma (Allahabad); Deepak Gaikwad (Indore); V. V. Deshpande (Nagpur); Suresh Giakwad (Pune); Mohanan B. (Kerala); Yogesh Sharma (Jabalpur); D. Shreedhar (Osmania); Hasanuddin Siddiqui (Aligarh); Prasant Dondal (Amravati) and Suresh Kumar (Allahabad).

The team has been selected after selection trials at Rajasthan University, Jaipur on January 15th and 16th, 1988. The selected members are at present attending a coaching camp at Jaipur under the supervision of Mr. M. A. Khan of Rajasthan University.

We Congratulate...

(1) Prof. Yash Pal, Chairman, University Grants Commission, who has been elected the General President of the Indian Science Congress Association (ISCA) for the year 1989-90.

(2) Prof. P. B. Mangla, Head of the Department of Library and Information Science, University of Delhi on his election as Vice-President of the International Federation of Library Associations and Institutions (IFLA).

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertations as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

CURRENT DOCUMENTATION IN EDUCATION

A List of Select Articles culled from Periodicals received in the AIU Library during January, 1988

EDUCATIONAL PHILOSOPHY

Bayti, Jamnalal. Values in relation to religious and moral education. *J Indian Edn* 13(2), 1987, 15-7.

Chandler, Tertius. Education—Less of it. *College Bd Rev* (144), 1987, 5-7, 24-5.

Fiala, Robert and Lanford, Audri Gordon. Educational ideology and the world educational revolution, 1950-1970. *Comp Edn Rev* 31(3), 1987, 315-32.

Laramee, William A. The role of metaphors in higher education. *The College Bd Rev* (143), 1987, 19, 33-44.

EDUCATIONAL PSYCHOLOGY

ACQUISITION AND transfer of knowledge and cognitive skills. *Intl J Ednl Res* 11(6), 1987, 603-712.

Shah, K.M. An investigation into the personality factors in the context of innovativeness of the teachers. *Prog Edn* LXII(4), 1987, 84-9, 95.

EDUCATIONAL ADMINISTRATION

Grossman, Robert J. Marketing : Key to institutional survival and success. *Coll Bd Rev* (143), 1987, 15-7, 32-33.

Hilpert, John M and Alfred, Richard L. Improving enrolment success : Presidents hold the key. *Ednl Record*, 68(3), Summer 1987, 30-35.

Renner, K. Edward. Academic decision-making : Faculty appointments and reappointments. *Res Hr Edn* 26(4), 1987, 363-72.

Wilson, Glenn T. Coping with changing student demands. *The Coll Bd Rev* (143), 1987, 25-7, 39-40.

CURRICULUM

Bergenhenegouwen, G. Hidden curriculum in the university. *Hr Edn* 16(5), 1987, 535-43.

Freeman, Jennifer. The international baccalaureate. *The Coll Bd Rev* (143), 1987, 5-6, 40.

Piland, William E and others. Serving academically gifted students in community colleges. *The Coll Bd Rev* (143), 1987, 21-3, 34-37.

TEACHERS AND TEACHING

Broadfoot, Patricia and others. Teachers' conceptions of their professional responsibility : Some international comparisons. *Comp Edn* 23(3), 1987, 287-301.

Bullford, Harris, J. Scaling the Ivory Tower. *Change* 19(6), 1987, 58-60.

Cole, Sue and others. Towards a new emphasis in monitoring. Open Learning 2(3), 1987, 13-18.

Hess, J.D. Teaching ideas in college classes. *College Bd Rev* (145), 1987, 19-21, 33.

Solomon, Joan. New thoughts on teacher education. *Oxford Rev Edn* 13(3), 1987, 267-74.

Thirmalaivelu, T.S. Anomalies in higher education. *Prog Edn* LXII(3), 1987, 62-5.

Young, Robert E. Faculty development and the concept of 'Profession'. *Academe* 73(3), 1987, 12-14.

EDUCATIONAL RESEARCH

Zuber-Skerritt, Ortrun. A repertory grid study of staff and students' personal constructs of educational research. *Hr Edn* 16(5), 1987, 603-23.

EDUCATIONAL TECHNOLOGY

Cawthome, Martin. Careers guidance at a distance. *Open Learning* 2(3), 1987, 30-35.

EVALUATION

Dynarski, Mark. The scholastic aptitude test : Participation and performance. *Eco Edn Rev* 6(3), 1987, 263-73.

Gigliotti, Richard J. Expectations, observations and violations : Comparing their effects on course ratings. *Res Hr Edn* 26(4), 1987, 401-15.

Godbole, R.D. Objective tests (MCT) : Inadequate for college and university. *J Hr Edn* (Delhi), 12(1-3), 1987, 91-100.

Jesson, David and others. Performance assessment in the education sector : Educational and economic perspectives. *Oxford Rev Edn* 13(3), 1987, 249-66.

Ogura, Yoriko. Examination Hell : Japanese education's most serious problem. *College Bd Rev* (144), 1987, 8-11, 26-30.

ECONOMICS OF EDUCATION

Dolan, Robert C and Schmidt, Robert M. Assessing the impact of expenditure on achievement : Some methodological and policy considerations. *Eco Edn Rev* 6(3), 1987, 285-99.

Shah, Beena. Expansion of primary education after independence. *Prog Edn* LXII(4), 1987, 90-5.

SCIENCE EDUCATION

Lewin, Keith M. Science education in China : Transformation and change in the 1980s. *Comp Edn Rev* 31(3), 1987, 419-41.

VOCATIONAL EDUCATION

Bridgewood, Ann. Technical and vocational education : A comparison between initiatives in Britain and abroad. *Ednl Res* 29(3), 1987, 163-72.

Dutta, Mahadev and Niyogi, Santimoy. Improving engineering teaching. *J Indian Edn* 13(2), 1987, 41-3.

DISTANCE EDUCATION

Bhaskara Rao, P. Indira Gandhi National Open University : System and communication. *J Hr Edn* (Delhi), 12-(1-3), 1987, 180-84.

Fischer, Richard B. Contracting with business and industry. *New Directions Cont Edn* (35), 1987. 59-70.

Gupta, M.L. Finances of correspondence education. *J Hr Edn* (Delhi), 12(1-3), 1987, 159-67.

Pappas, James P. Strategic market planning in Conglomerate continuing education programs. *New Directions Cont Edn* (35), 1987, 31-44.

Perraton, Hilary. Theories, generalisation and practice in distance education. *Open Learning* 2(3), 1987, 3-12.

Walker, Richard. Correspondence tuition : A training exercise. *Open Learning* 2(3), 1987, 47-9.

COMPARATIVE EDUCATION & COUNTRY STUDIES

Desai, Prakash. Japanese system of education : A mini model for India. *Prog Edn* LXII(5), 1987, 117-19.

Groth, Alexander J. Third World Marxism-Leninism : The case of education. *Com Edn* 23(3), 1987, 329-343.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities.

BIOLOGICAL SCIENCES

Anthropology

1. Malleswara Rao, Pitchika. *An anthropo-serological study of Gadaba.* Andhra.

Environmental Sciences

1. Oberoi, G.S. *Water pollution studies and utilization of the polluted water for irrigation in Dewas areas.* Vikram. Dr. P.S. Dubey.

Marine Sciences

1. Baby, K.V. *Combined toxicity of heavy metals and petroleum hydrocarbons on selected marine organisms.* Cochin. Dr. N. Ravindranatha Menon.
2. Chandge, Manohar Shivaram. *Studies on lipid nutrition in larvae and juveniles of the Indian while prawn, Penaeus indicus.* CUST. Dr. R. Paul Raj.
3. Santhakumari, V. *Studies on associates and parasites of some marine organisms and zooplankton studies with special reference to hydromedusae.* D.Sc. Cochin.
4. Sivadasan, C.R. *Studies on the effects of selected trace metals on Metapenaeous dobsoni.* CUST. Dr. P.N. Krishnan Nambisan.

Biochemistry

1. Dange, Arun Haribhau. *Studies on identification and individualisation of human milk by electrophoretic, immunological and serological techniques.* Nagpur. Dr. D.M. Brahmankar.
2. Krishna Rao, Appasani Satya Mohana. *Biochemical characterization of cloned DNA fragments from bacteriophage MB 78 and its host S. typhimurium.* BHU. Prof. Maharani Chakravorti.

Botany

1. Barua, Karabi. *Studies on abscissic acid during development and ageing of rice seeds, Oryza sativa L.* Calcutta.

2. Gill, Manjit Kaur. *Effect of some phenolics on the nitrogen metabolism in two varieties of peanut, Arachis hypogaea L.* PAU.

3. Gupta, Anil Kumar. *An ecological study on aquatic fungal flora from tanks of Kurukshetra.* Kurukshetra.

4. Gupta, Pratibha. *Studies on the effects of venom of Naja naja and diethyl sulphate on the morphology and physiology of certain blue green algae.* Sukhadia. Dr. R.S. Gupta.

5. Harsh, Shyam Lal. *Observations on the effect of cement dust on plants around Birla Cement Works, Chittorgarh.* Sukhadia. Dr. L.N. Vyas.

6. Iyre, R. Indira. *Studies on endogenous growth hormones from some tropical fruits.* Calcutta.

7. Joshi, Rajkumari. *Studies on the effect of cement dust pollution on soil properties and on some crop plants.* Sukhadia. Dr. L.N. Vyas.

8. Kapoor, Anita. *Responses of Trigonella foenum graecum L and Glycine max (L) Merr to vesicular arbuscular mycorrhiza in relation to phosphorus and nitrogen.* Delhi.

9. Mathur, Sudha Rani. *Studies on the seed biology of certain species of Lathyrus (Fabaceae).* Sukhadia. Dr. K. Prasad.

10. Mulik, Niranjana Gopalrao. *Studies on some aspects of mangroves.* Shivaji. Dr. (Smt) L.J. Bhosale.

11. Revathi, M.L. *Induced discolouration in wood.* Patel. Dr. J.D. Patel.

12. Sadhana Kumari. *Effects of lithium on cell division and cell components in eukaryotic test systems.* Calcutta.

13. Sharma. Madhu. *Histochemical and ultrastructural stndies on anther development in Solanum nigrum Linn. and Pterotheca falconeri Hook F.* Delhi.

14. Srivastava, Alaka. *Effects of cadmium and its accumulation in duck-weeds.* BHU. Dr. V.S. Jaiswal.

15. Umamahesh, V. *Ecological studies of ground nut crop fields with reference to weeds.* Saurashtra. Dr. S.M. Pandya.

Agriculture

1. Ashwani Kumar. *Powdery mildew of wheat pathological and genetical studies.* PAU.

2. Champawat, Ram Singh. *Studies on cumin, Cuminum cyminum L wilt incited by Fusarium oxysporum F Sp. cumin.* Sukhadia. Dr. V.N. Pathak.

3. Deshwal, Inder Singh. *Nutritional studies in pomegranate Punica granatum L.* Marathwada Krishi. Dr. V.K. Patil.

4. Dwivedi, Madhusudan Prased. *Effect of photoperiod and growth regulators on vegetative growth, flowering and yield of strawberry.* Y.S. Parmar. Dr. K.K. Jindal.

5. Gaur, Vinod Kumar. *Studies on the wilt pigeonpea, Cajanus cajan (L) Millsp with special reference to rhizosphere relationship.* Sukhadia. Dr. L.C. Sharma.

6. Jaggi, Ramesh Chand. *Evaluation of soil test methods for available P and fixation of its critical limits for wheat and soybean in some soils of Himachal Pradesh.* H.P. Krishi. Dr. B.S. Kanwar.

7. Jat, Ram Lal. *A study on the effects of levels of nitrogen, phosphorus and potassium and qualities of irrigation water on wheat grown on loamy sand soils.* Sukhadia. Dr. Phulwari Lal.

8. Keshwa, Gopal Lal. *Effect of different soil amendments and sources and methods of phosphate fertilization on growth, yield and quality of wheat, Triticum aestivum L grown on salt affected soils.* Sukhadia. Dr. G.D. Singh.

9. Khandelwal, Ram Baboo. *A study on the evaluation of the water quality with respect to boron for wheat grown on different soils.* Sukhadia. Dr. Phulwari Lal.

10. Kothari, Prahalad Rai. *Evaluation of the combining ability of the S-lines of CM 500 by using different testers in maize, Zea mays L.* Sukhadia. Dr. S.C. Gupta.

11. Kuldip Kumar. *Job satisfaction among the male trainers of Farmers Training Centres in India.* PAU.

12. Makhan Lal, *Scheduling of irrigation by climatological and critical crop stage approaches at different levels of phosphorus in pigeonpea in Gang command area.* Sukhadia. Dr. O.P. Gupta.

13. Maliwal, Pushkar Lal. *Effect of different herbicides with and without phosphorus on weed control and growth and yield of fenugreek, Trigonella foenum graecum L.* Sukhadia. Dr. O.P. Gupta.

14. Masih, Mukul Rani. *Studies on the availability and uptake of sulphur by mustard and ground nut.* Sukhadia. Dr. S. Niwas.

15. Mehrishi, Rajendra Prasad. *Studies on downy mildew disease caused by Pseudoperonospora cubensis (Berk. and Cust) Rostow in Rajastan.* Sukhadia. Dr. B.S. Siradhana.

16. Misra, Ashok Kumar. *Studies on the population dynamics and forecasting of Mythimna separata Walker.* BHU. Dr. Lallan Rai.

17. Nandwana, Ravi Prakash. *Studies on the root-knot nematode, Meloidogyne incognita (Kofoid and White, 1919) Chitwood 1949 associated with cotton.* Sukhadia. Dr. B S. Yadav.

18. Nirmal Singh. *Leaf nutrient status of apple, grape and almond orchards of Kinnaur District of Himachal Pradesh and its relationship with physico-chemical characteristics of soil.* HP Krishi. Dr. A.R. Bhandari.

19. Pareek, Bhanwar Lal. *Investigations into the effect of stand geometry and bio-regulator on the growth, yield and quality of select cultivars of rapeseed and mustard grown in Kota region of Rajasthan.* Sukhadia. Dr. P.C. Gupta.

20. Prashant Kumar. *Studies on the effect of nitrogen, phosphorus and ethephon on onion, Allium cepa L. cv. Pusa red.* BHU. Prof. A.N. Maurya.

21. Qureshi, Faquir Mohammad. *Reclamatian of saline sodic soils of semi arid regions of Rajasthan using local ameliorative materials including Cassia auriculata.* Sukhadia. Dr. Fateh Karan.

22. Ram, Jilathoo. *Studies on genetic architecture of yield and its components in rice, Oryza sativa L.* BHU. Dr. Jagadamba Singh.

23. Sahu, Kartik Chandra. *Studies on sclerotium rot of groundnut.* OUAT. Dr. A. Narain.

24. Sharma, Bhim Sen. *Root rot of sugar beet induced by Sclerotium rolfsii.* Sukhadia. Dr. V.N. Pathak.

25. Sharma, Madan Mohan. *Physio-toxicological studies on the effect of difluran on some Lepidopterous pests,* Sukhadia. Dr. R.P. Srivastava.

26. Sharma S.N. *Genetic architecture of yield and yield associated characters in macaroni wheat, Triticum durum Desf.* Sukhadia. Dr. R.K. Sharma.

27. Singh, Prem Shanker. *Insect pest incidence in relation to certain pigeonpea cultivars and insecticides.* BHU. Prof. H.N. Singh.

28. Sood, Milap Chand. *Effect of different soil management practices on the in-situ depth borne soil physical changes during rice culture and their effect on the subsequent crop of potato.* HP Krishi. Dr. C.L. Acharya.

29. Sudhakar, Yekula. *Genetics of leaf rust and leaf blight resistance in spring wheat, Triticum aestivum (L) em. Thell.* BHU. Dr. G.S. Sharma.

30. Tomer, Shiv Singh. *Nitrogen management for increased N. use efficiency in transplanted rice in vertisols of Rajasthan.* Sukhadia. Dr. J.K. Verma.

31. Tonk, Vijay Singh. *Genetic analysis of pre-anthesis stages of ear development and its association with yield and its components in wheat populations.* HAU.

Zoology

1. Arun Kumar. *Genetic studies of Indian Drosophila* BHU. Dr. J.P. Gupta.

2. Dhir, Ravindra Kumar. *An investigation an the mode of action of postcoital antifertility agents during the pre-implantation stage of pregnancy on rat.* Rajasthan. Dr. Dennis Jacob.

3. Dubewar, Diwakar Madhaorao. *Hormonal control of calcium metabolism in lower vertebrates with special reference to evolution. D.Sc.* Nagpur.

4. Gupta, Ira. *Fertility regulation with the help of plant materials and non-steroidal coumarin compounds : A comparative evaluation with special reference to physiomorphology in male albino rats.* Rajasthan. Dr. V.P. Dixit.

5. Guruprasad, B.K. *Some aspects of ecology and behaviour of Bandicota bengalensis.* Bangalore. Dr. E. Radha.

6. Jayapala, Paladugu. *Studies on the role of selected fertilizers in relation to water quality and fish growth.* Sukhadia. Dr. V.K. Rajbanshi.

7. Kant, Ashwini Kumar. *Evaluation of plant preparations for postcoital antifertility efficacy in rats.* Rajastan. Dr. N K. Lohiya and Dr. Dennis Jacob.

8. Nair, Neena. *Hormonal regulation of enzymes in liver, intestine and testes of albino rats.* Rajasthan. Dr. R.S. Mathur and Dr. K.S. Kohli.

9. Patil, Mohan Ganpati. *Comparative studies on lipids in adipose tissue of Indian bats.* Shivaji. Dr. V.A. Sawant.

10. Rao, Manohar Singh. *Histochemicals and histoenzymological alterations in the spleen of Taphozous melanopogon melanopogon Temmnick (Microchiroptera; Mammalia) from pregnant to pregnant state.* Sukhadia. Dr. S.B. Lal.

11. Sai Sastry, Addepalli Gopala Ranga. *Studies on the hydrography and plankton of a tropical tidal estuary (The Vasista Godavari) on the east coast of India.* Andhra.

12. Sailaja, Rallabandi. *Interaction of environmental and endocrine factors in the regulation of reproductive cycles in free-living female rose-ringed parakeets.* Patel. Dr. V.C. Kotak.

13. Saini, Anita Kumari. *Studies on cytological and biochemical aspects of the toxicity of organophosphorus insecticides and their accumulation in micro-organisms.* Delhi.

14. Sharma, Ragini. *Comparative immunocytochemical studies on the ACTH cells of certain vertebrates.* Rajasthan. Dr. R.R. Unnithan.

15. Sharma, Surendra Datta. *A comparative study of aquatic ecosystem of Ramgarh lake near Jaipur and Ghana Bird Sanctuary, Bharatpur with special reference to zoobenthos and fish productivity.* Rajasthan. Dr. C.L. Mahajan.

16. Shrivastava, Ram Krishna. *Studies on morphology and physiology of the digestive system of Aspidomorpha miliaris F (Coleoptera; Chrysomelidae).* Ravishankar. Dr. K.K. Verma.

17. Srivastava, Vinita. *Relative efficacy of different rodenticides on field and house rats with special reference to silmurin.* Sukhadia. Dr. R.C. Srivastava.

Medical Sciences

1. Hari Shankar. *Studies on brmhana effect of certain lehas mentioned for children.* BHU. Dr. C. Chaturvedi.

2. Mishra, Santosh Kumar. *Mechanical responses of rat vas deferens : Role of calcium and sodium.* BHU. Prof. A.K. Sanyal.

3. Neelarm. *A study on the role of daihika prakriti in artava vyapad.* BHU. Prof. (Miss) P.V. Tewari.

4. Sharma, Sunil Datt. *Hridroga with special reference to ischaemic disease.* BHU. Prof. S.N. Tripathi.

5. Shukla, Veena. *Hemispheric specialization and psychiatric illness.* BHU. Dr. P.B. Behere.

6. Singh, Gyanendra Nath. *Kinetics, stability and physico-chemical studies of butaperazine dimaleate and norfloxacin.* BHU. Dr. R.P. Gupta.

7. Uppal, Arun Kumar. *Haematological response to graded exercise in males belonging to high and low fitness groups.* D. Litt. Jiwaji.

Animal Husbandry

1. Chaudhury, Kamini. *Effect of different levels of protein and amino acids with constant energy level on the performance of broilors.* HAU.

2. Manjunath, N. *Effect of lactic acid bacteria on tumour cell lines.* Kurukshetra.

3. Mehta, Sunder Lal. *Genetic studies of growth and characteristics of sonadi and their crosses with corriedale.* Sukhadia. Dr. R.K. Bhargava.

4. Purohit, Rajendra Kumar. *Radiographic studies on dentition and dental disease in camel.* Sukhadia. Dr. M.R. Patel and Dr. A.K. Ghosal.

5. Salma. *Studies on leuconostocs and their role in the preparation of cultured milk products.* Kurukshetra.

6. Suraj Bhan. *Studies on light management for layers.* HAU.

7. Tilak, K. Bala Gangadhar. *Role of starter cultures in the ripening of cheddar cheese made from buffalo milk.* Kurukshetra.

Central Institute of English and Foreign Languages

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ADVERTISEMENT No. I/88

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CLASSIFIED ADVERTISEMENTS

UNIVERSITY OF ROORKEE

ROORKEE

Advt. No. Estt(A)/1/A-86 (Advt.)-88 **Drted: Jan. 8, 1988**

Applications on prescribed forms, obtainable from the Registrar, either personally or by sending a self addressed envelope (9'' x 4'') affixed with 1.40 paise stamps, are invited for the following posts. Higher starting salary could be offered to candidates based on their qualifications and experience. Applicants should not generally be above the age of 55 years. Candidates in employment are required to send their applications through proper channel. Applications received late/incomplete or without required remittance will not be entertained.

Last date of receipt of Applications on prescribed form alongwith application fee of Rs. 10/- (By Bank Draft or Indian Postal Order in favour of Registrar, University of Roorkee) **is February 25,** 1988 and **for overseas candidates is March 25, 1988.**

[Abbreviations used : R-Regular, T-Temporary]

Sl. No.	Post	Pay Scale	Vacancy
A.	**Department of Mechanical & Industrial Engineering** (Welding Research Laboratory)		
1.	Project Scientist	Rs. 1500-2500	1T
2.	Project Scientist	Rs 1200-1900	1T
B.	**Humanities & Social Sciences Department**		
1.	Reader	Rs. 1200-1900	3R+1T
2.	Lecturer in German	Rs. 700-1600	1R
3.	Lecturer in English	Rs. 700-1600	1R
C.	**Roorkee University Regional Computer Centre**		
1.	System Manager	Rs. 1100-1600	2R
D.	**Audio Visual Research Centre**		
1.	Research Scientist 'A'	Rs. 700-1600	1T
2.	Cameraman (Grade-I)	Rs. 700-1600	1T
E.	**Central Library**		
1.	Librarian	Rs. 1540-2200	1R
2.	Asstt. Archivist	Rs. 770-1600	1T
F.	**National Service Scheme**		
1.	Co-ordinator, Training & Orientation Centre	Rs. 1200-1900	1T

Qualifications

(A) Department of Mechanical & Industrial Engineering
(Welding Research Laboratory)

1. For Project Scientist—
Rs. 1500-2500— 1T

(i) M.E. Degree in Mechanical/Metallurgy / Production / Welding Testing.

(ii) An eminent Scholar with published work of high quality actively engaged in research. Ten years experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding Engineer/Technologists with established reputation who has made significant contribution to knowledge in the field of Welding Technology.

Specialization : Welding Tech /Welding Metallurgy.

Desirable : Ph.D. in Welding Engineering.

2. For Project Scientist—
Rs. 1200-1900 1T

(i) M.E. Degree in Mechanical/Metallurgy/Production/Welding/Instrumentation/Welding Testing.

(ii) A good academic record with a Doctor's degree in a relevant field. About 5 years experience of teaching and/or research and development, out of which at least 3 years in Welding area.

The candidates not possessing Ph.D. may be considered if they have to their credit equivalent research published work or design/development work of a high order either in the institution or in an industry.

OR

In the case of persons to be recruited from industry or professional fields, candidate should possess good academic record with recognised professional work of about 7 years which should include innovation and/or research and development.

Specialization : Welding Tech./Welding Metallurgy/Welding Equipment.

(B) Department of Humanities & Social Sciences

U.G.C. prescribed qualifications.

Specialization

1. For Readers : — 3R+1T

(i) Psychology (Organization Behaviour & Personnel Management) 1R
(ii) Managerial Economics / Labour Economics/General Management 1R
(iii) English 1R
(iv) Economics / History / Russian/ German 1T

2. For Lecturers — 2R

German 1R
English 1R

(C) Roorkee University Regional Computer Centre

For System Manager — 2R

Master's of P.G. Diploma in Computer Technology/or Master's degree in Engg./or Ph.D. in Science. Specialized experience in Computer Hardware/Software.

Seven years experience of teaching/research, design and industry/System Management/System Hardware/Software

Note : The System Manager may be assigned duty during any hours at night and day. Therefore, only those persons need apply who are prepared to do duty during all the hours.

Specialization : Software — 1
Hardware/Software — 1

(D) Audio Visual Research Centre

For Research Scientist 'A'

(i) A Doctor's degree or research work of an equally high standard in any branch of Science, or Education/Social Psychology, or Education or Sociology,

(ii) Good academic record with at least 2nd Class Master's degree in any subject listed above.

or

(i) Master's degree in Engineering/Technology,

(ii) Good Academic record with a Bachelor's degree in Engineering/Tech. Ist class at Bachelor's degree and/or Master's degree level.

(iii) One year's relevant professional experience outside academic/research institutions.

(E) Central Library

1. Librarian — 1R

Master degree with Master degree in Library Science.
5 years experience.

2. Assistant Archivist — 1T
(Archival Cell)

M.A. with Modern Indian History with Ist or good 2nd Division (50% marks)
A Diploma in Archival and Historical Research.
5 years experience.

(F) National Service Scheme

For Co-ordinator Training & Orientation Centre — 1T

Essential

(a) A Dotor's degree or A Master's degree with published work in Engg./Science/Social Sciences.

(b) 7 years experience of teaching/research/design & industry in appropriate field with atleast 2 years experience in teaching/research.

Desirable

(a) Experience in guidance of research.

(b) Teaching experience in an Institution of University level.

(c) Published research work.

Note

Candidate should have relevant experience of conducting social service activities/work related with rural development.

Note

1. Number and nature of posts shown above may change at the time of selection.

2. Only Indian Nationals need apply.

REGISTRAR

STRUCTURAL ENGINEERING RESEARCH CENTRE

CSIR Campus, TTTI, Taramani
P. O. Madras-600113

Advertisement No. SE-1/88

Applications are invited from Indian Nationals for the under-mentioned posts in the Structural Engineering Research Centre, Madras.

1. Scientist C—3 Posts (Group IV (2))

Scale of pay: Rs. 3000-100-3500-125-4500

Qualifications & Experience

I class B.E. in Civil Engineering with atleast six years experience or M.E. in Structural Engineering with four years experience or Ph. D. in Structural Engineering. Minimum years of experience relaxable only in exceptional cases.

Job Requirements

For Post No. 1 & 2

The condidate should have thorough knowledge of advanced methods of structural analysis (particularly about the finite element method) and design. He/She should possess good experience in development and use of computer programs for analysis and design. Candidates with experience in dynamic/stability analysis of shell structures will be preferred.

For Post No. 3

Candidate should have thorough knowledge of advanced methods of structural analysis and design.

Minimum of three years' experience in the development of Computer Software/program for design/analysis of structures is essential. Candidates with experience in the use of standard software programs like SAP, STRUDL, etc., and familiarity in the use of PCs, mini or main frame systems will be preferred. Experience in development and use of programs with graphics facilities is also preferred. The selected candidate will be required to work on software development, implementation and training of personnel at various sites.

2. Scientist B—2 Posts (Group IV (1))

Scale of Pay: 2200-75-2800-EB-100-4000

Qualifications

I class B.E. in Civil Engineering or M. Tech./M.E. in Structural Engineering.

Experience & Job Requirements

For Posts No. 1

Candidates having 3 to 4 years experience in advanced methods of structural analysis and design will be preferred. The selected candidate is required to work in the area of computer aided analysis and design of structures.

For Post No. 2

The selected candidate should be familiar with advanced methods of structural analysis and design. Preference will be given to those who are having 3 to 4 years of experience in design and analysis and atleast one year experience in computer programming. Familiarity with the use of PCs and graphic facilities is desirable. The selected candidate will be required to work on software development, implementation and training of personnel at various sites.

Note: Out of the two posts of Scientist B, one is reserved for Scheduled Tribe Community. Scheduled Caste candidate will also be considered. If however, no Suitable scheduled Tribe/Scheduled Caste candidate is available, the post will be treated as unreserved and filled by general candidate.

In the case of Scheduled Caste/Scheduled Tribe Candidates, a lower standard of suitability consistent with Efficiency of Administration will be Applied.

The number of vacancies specified in each category is likely to vary.

The posts are temporary but likely to continue. They carry besides pay, allowances as admissible under the Central Government rules. The total emoluments at the minimum of the scale for the posts are as follows :

on Rs. 3,000 — Rs. 4,090/-
on Rs. 2,200 — Rs. 3,036/-

Scientific and Technical posts carry the benefits of Rule 30 of CCS (Pension) Rules, 1972.

Application forms can be obtained (free of cost) from the Administrative Officer, Structural Engineering Research Centre, Taramani, Madras-600113, upto **1-2-1988**. Advertisement Number, Name of the post applied for and full address in Block letters must be indicated at the top of the request which should be sent together with self-addressed stamped envelope (Rs. 1.40p.) of 23 cm x 10 cm for obtaining application form.

The last date for receipt of application form together with non-refundable application fee of Rs. 8/- in the form of Crossed Indian Postal Order drawn in favour of "IRF—Structural Engineering Research Centre, Madras is **15-2-1988.** The candidates belonging to Scheduled Caste/Scheduled Tribe communities are exempted from application fee.

Applications should be supported by attested copies of the certificates/testimonials, relating to educational qualifications, date of birth, experience and community certificate in respect of Scheduled Caste/Scheduled Tribe candidates from the appropriate authority.

Applications from employees working in Government Departments, Public Sector Organisations and Government funded research agencies will be considered only if forwarded through proper channed and with a clear certificate that the applicant will be relieved within one month of receipt of the appointment orders.

Applying for the position advertised herein does not by itself automatically entitle an applicant to be called for interview, which will be governed by prevailing rules and regulations. Since it is not possible to call all the candidates for test/interview, the application will be shortlisted for the purpose and the decision of the competent authority will be final in this regard.

Incomplete applications will not be considered.

Canvassing in any form and/or bringing any influence political or otherwise will be treated as a Disqualification for the Post.

Interim Enquiries will not be attended to.

CENTRAL DRUG RESEARCH INSTITUTE

(Council of Scientific & Industrial Research)

Advertisement No. I/88

Applications are invited for the following posts in Central Drug Research Institute, Lucknow :

1 **Scientist E.I. :** 2 Posts
(Rs. 3700-125-4700-150-5000)

Post No. (i)

Ph.D. with 10 years research experience and publications of significance in the area of lipoproteins or polynucleotides.

Job Requirements : Candidate would be expected to provide leadership in the area of specialisation.

Post No. (ii) (RSIC)

First class M.Sc. in Chemistry with 12 years experience/Ph.D. in Chemistry with 10 years experience in X-ray Crystallography / NMR / MASS / FT-IR Spectroscopy. The person should have proven competence in the use, maintenance and application of these instruments in chemical and biological research as evidenced by research publications in journals of repute. He should have a flair for using these instruments for innovative research.

Job Requirements : The selected candidate will be required to conduct and guide research in the above area and to supervise such facilities in RSIC.

2. **Scientist C :** 3 Posts
(Rs. 3000-100-3500-125-4500)

Post No. (i)

Ph.D. in Statistics & Mathematics with 2 years experience and publications of significance concerned with analysis of biomedical data.

Job Requirements : To collate and analyse data from clinical trials and biological experiments.

Post No. (ii)

Ph.D. with 2 years experience in Mycology. Preference will be given to persons with research experience in relation to immunology of fungal infections.

Job Requirements : To study the immunology of human pathological fungi.

Post No. (iii) (RSIC)

Ph.D. in physical or organic chemistry with atleast 2 years experience of working with superconducting FT-NMR spectrometer / mass spectrometer. He should be well-versed in the application of FT-NMR spectrometry/mass spectrometry in the fields of physical and biological science as evidenced by publications of original research work.

Job Requirements : To maintain and operate a 400 Hz FT-NMR/mass spectrometer and to use it for applications in chemistry and biology. The selected candidate will be expected to conduct and guide research on problems involving FT-NMR spectroscopy / mass spectrometry.

3. Scientist B : 9 Posts
(Unreserved : 5)
(Rs. 2200-75-2800- (Reserved for SC 2)
EB-100-4000) (Reserved for ST 2)

Post No. (i)

First Class M.Sc. or M.V.Sc. with 6 years research experience or Ph.D. 2 years experience in testing compounds for biological activity desirable. Preference will be given to persons having experience in testing against parasitic infections.

Job Requirements : To undertake test for antimalarial activity in primate models.

Post No. (ii)

First Class M.Sc. in Biochemistry/Physiology/Zoology or M.V. Sc. (Physiology) or Ph.D. in any of the above subject. Experience in reproductive biology/radioreceptor/radioimmunoassay will be an added qualification.

Job Requirements : To undertake studies on reproductive biology of mammals and development of antifertility agents.

Post No. (iii) (Reserved for SC)

First Class M.Sc. or Ph.D. degree in Biochemistry/Organic Chemistry. 3 years experience in applied biochemistry and good knowledge and experience in the development of radio or enzyme immunoassay of small molecules desirable.

Post No. (iv)

First Class M.Sc. or Ph.D. degree in Biochemistry/Organic Chemistry. 3 years experience in Synthetic Organic Chemistry and good knowledge and experience in the development of radio or enzyme immunoassay of small molecules desirable.

Job Requirements : Conduct of research in the development of radio and enzyme immunoassay of small molecules for pharmacokinetics studies and study in vitro . metabolism of drugs under development.

Post No. (v)

First Class M.Sc. with 5 years research experience or Ph.D. with 2 years research experience in the Synthesis of peptides of biological interest.

Job Requirements : To synthesise peptides and other molecules of biological interest.

Post No. (vi) (Reserved for SC)

First Class M.Sc. or Ph D. 2 years experience for up-scaling preparations of Organic Compounds desirable.

Job Requirements : The selected candidate would be expected to take up the synthesis and preparation in kilogram quantity of compounds needed for drug developmental studies.

Post No. (vii)

First Class M.Sc. in Physics/Computer Sciences or First Class B.E. in Electronics/Telecommunication Engg. 2 years experience in service and maintenance of digital and microprocessor based analytical equipments or computer systems used in a modern analytical laboratory desirable.

Job Requirements : To troubleshoot analytical equipments like HPLC, UV-Vis & IR spectrophotometers, NMR & Mass Spectrometers, which are microprocessor controlled.

Post No. (viii) (Reserved for ST)

First Class M.Sc. (Biophysics, physics, Biochemistry, Zoology or Life Sciences/ M.V.Sc. (Physiology, Pharmacology)/ M.Pharm. (Pharmacology)/M.B.B.S. 3 years research experience in a field allied with the job requirements desirable. Preference will be given to candidates having research experience in cellular electrophysiology using microelectrode techniques.

Job Requirements : To undertake investigations on the cardiac ionic channel activity and plan and carry out electrophysiological experiments on multicellular and isolated single heat cell preparations.

Post No. (ix) (RSIC) (Reserved for ST)

First Class M.Sc. in physical or Organic Chemistry, or Ph.D. in Mass or NMR Spectroscopy. 3 years experience in the operation of Mass Spectrometer/ FT-NMR spectrometer desirable.

Job Requirements : The person selected will be involved in the operation and maintenance of mass spectrometers/ FT-NMR spectrometers. He is also expected to conduct research using these instrumental techniques.

4. Senior Technical Assistant (RSIC) :
3 Posts (Unreserved 2)
(Reserved for SC 1)
(Rs. 1640-60-2600-EB-75-2900)

Post Nos. (i) & (ii) (Post No. (i)
(reserved for SC)

B.Sc. with 3-5 years experience in the operation of FT-IR Spectrometer/mass spectrometer/NMR spectrometer or M.Sc. or equivalent.

Job Requirements : The selected candidates will be involved in the operation and maintenance of FT-IR Spectrometer/Mass Spectrometer/NMR spectrometer.

Post No. (iii)

Diploma in Engineering/Tech. of 3 years duration or equivalent plus 3-5 years experience in refrigeration, running and maintaining liquid helium and liquid nitrogen plants.

Job Requirements : The selected candidate will be involved in the operation and maintenance of liquid helium and liquid nitrogen plants.

5. Junior Technical Assistant (RSIC) : 1 Post
(Rs. 1400-40-1800-EB-50-2300)

B.Sc. 1-2 years experience in running IR/UV/NMR/MASS/GC/HPLC instruments desirable.

Job Requirements : The selected candidate will be involved in the operation of any of the above instruments.

GENERAL CONDITIONS

1. All the above posts carry usual allowances as admissible under the rules of Govt. of India.

2. A lower standard of suitability consistent with efficiency will be applied in respect of Scheduled Caste/Scheduled Tribe candidates for the reserved posts. Candidates belonging to these communities should invariably enclose an attested copy of original caste certificate issued by a competent authority with their application failing which they will not be entitled to the concessions otherwise admissible to them. In the even of non-availability of SC/ST candidates for the post of Sc. 'B' the post will be filled up by general candidates by following the prescribed procedure.

3. Since it is not possible to call all the eligible candidates for interview, the applications will be shortlisted for the purpose and the decision of the Director will be final.

4. Applicants called for interview will be paid single second class rail fare to and fro the actual place of undertaking the journey or from the normal place of residence as mentioned in the application whichever is nearer to Lucknow Railway Station.

5. The prescribed application form may be obtained from the Senior Administrative Officer, Central Drug Research, Institute, Chattar Manzil Palace, P.B. No. 173, Lucknow-226001 (U.P.) by sending a requisition duly indicating the post and advertisement number alongwith a self-addressed envelope of size (23×10 cm.). Any request for application form received after **10.2.88** will not be entertained for supply by post. Application duly completed (supported by attested copies of certificates and testimonials) alongwith a non-refundable fee of Rs. 10/- (no application fee is prescribed for SC/ST candidates) in the form of crossed Indian Postal Order drawn in favour of the Director, Central Drug Research Institute, Chattar Manzil Palace, Lucknow should reach Director, CDRI, Lucknow on or before **25.2.88.** Application received after this date will not be considered.

6. Separate application for each post alongwith requisite postal order in a separate envelope indicating the advertisement number and post applied for should be sent.

7. Candidates in Government/Semi-Govt. Organisations, public undertakings and autonomous bodies should route their applications through proper chennel.

8. The number of vacancies to be filled may vary at the time of actual selection and due consideration for reservation of posts will be given where necessary.

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REGISTRAR

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V. S. Chitre
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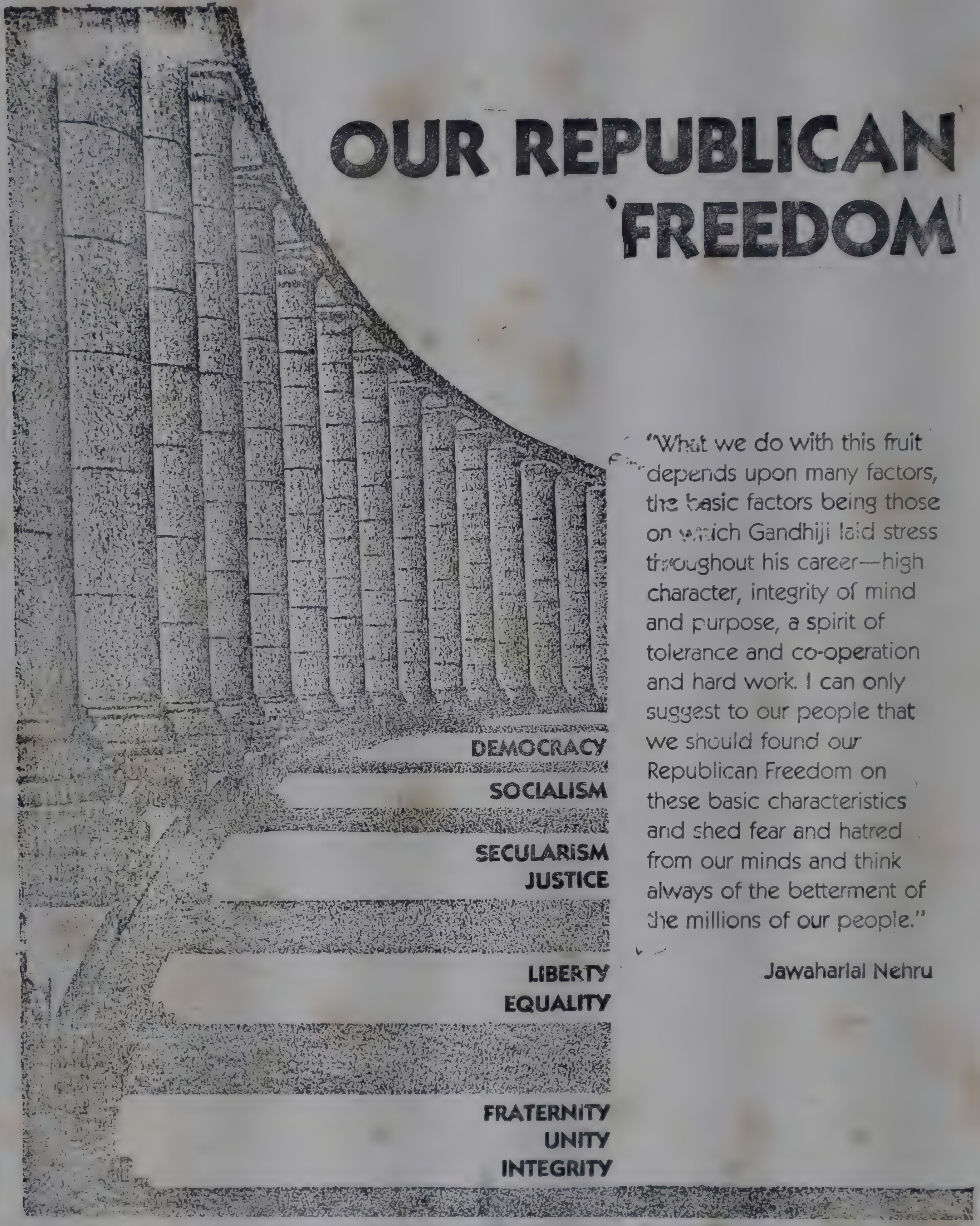

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University News

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National Youth Week Celebrations

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AIU and Deptt. of Youth Affairs & Sports, Government of India, jointly celebrated the National Youth Week in New Delhi. Picture shows Chirmi Folk Dance performed by Rajasthan University students.

G. B. Pant University of Agriculture & Technology

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Editor :
SUTINDER SINGH

INSTRUCTIONAL STRATEGY FOR DISTANCE EDUCATION

A. S. Pillai*

Introduction

We are living in an exciting period in the history of education where new ideas appear faster than old ones become irrelevant. The advances made in the scientific and technological field have put greater demands on individuals in the society who in turn are making increased claims from education. Distance education is yet another dimension which with appropriate academic environment and political will can transform the entire society and immensely contribute towards its development. The offer that distance education is making is very attractive when its major aim is academic progress with special emphasis on reaching the unreached.

A Framework for Distance Education

Preparing a framework for an instructional strategy for distance education will have to be done at three levels—(i) National Level, (ii) University Level, (iii) Instructional Level. The national goals together with the distance education goals should form the official overlying objectives while the practical overlying objectives will be developed by the university or the institution concerned. Based on these the instructional designers formulate the operative goals. These objectives should decide the parameters within which an instructional manager can work on.

The framework represented in the diagram (on next page) clearly shows the importance of objectives at various levels and also that of the target population. Dealing with adults at various levels demands an analytical study. Adults very frequently lack confidence in their own ability to learn though these adult learning groups represent a rich mixture of existing knowledge and experience. Especially, when we are dealing with adults employed or even housewives, they tend to resist the painful process of personal intellectual and manipulative changes which are involved in learning. Adults are likely to overcome these difficulties more effectively in the supportive framework of cooperative learning group at their own pace, possibly in smaller steps and without external pressures such as frequent examinations (Elsdon, 1987).

What is, therefore, required is systematised instructional strategy based on the types of target population and the constraints associated with the implementation. A continuous and thorough evaluation procedure must be employed to test the system itself so that the organizers may very well be aware of the needs of the learners.

Any instructional strategy developed should be based on the

Bharatiya Vidya Bhavan, Makarpura Road, Baroda-390009.

structure of the distance education system. The efficient realisation of the instructional strategy calls for the following instruments :

- —Survey of the target population
- —Segmentation (formation of target groups)
- —Organizing instructional materials (development, printing, etc.)
- —Organizing communication (advertising, personal communication, etc.)
- —Organizing contact seminars, discussions, etc.
- —Organizing reciprocity (fees, finance, etc.)
- —Evaluation of the system.

These instruments must effectively be combined to form the overall nature of the instructional strategy.

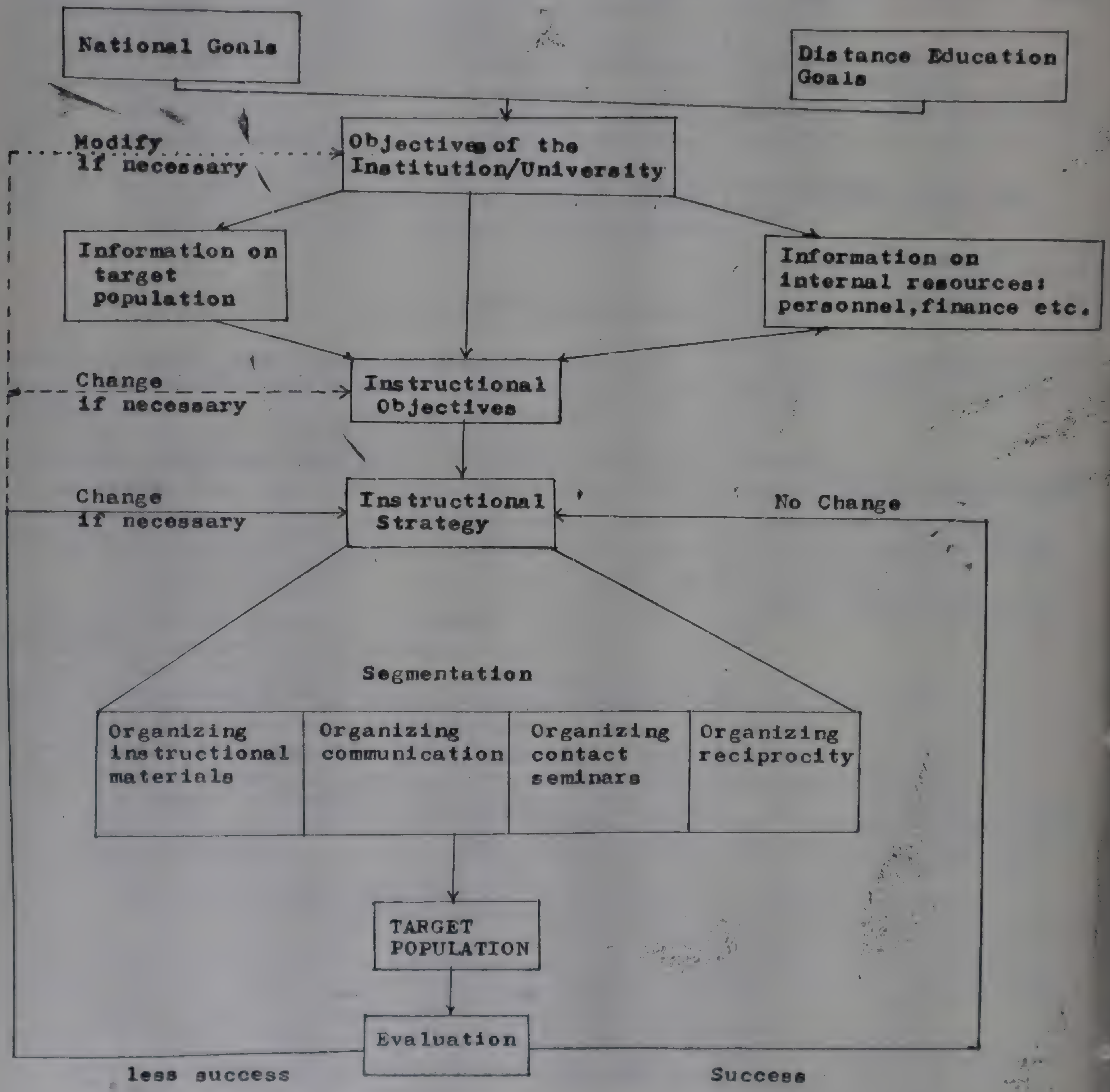
National Goals
Distance Education Goals
Modify if necessary
Objectives of the Institution/University
Information on target population
Information on internal resources: personnel, finance etc.
Change if necessary
Instructional Objectives
Change if necessary
Instructional Strategy
No Change
Segmentation
Organizing instructional materials
Organizing communication
Organizing contact seminars
Organizing reciprocity
TARGET POPULATION
Evaluation
less success
Success

Diagram : A Framework for an Instructional Strategy in Distance Education

The academic aspects in the instructional strategy involve the following steps :

(1) Needs assesment,
(2) Preparation of instructional materials :
    (a) Task analysis, (b) Orienting the learner
        (i) Performance expectations
        (ii) Questions
        (iii) Advance Organizers
(3) Transmission of materials,
(4) Performance assessment.

The main focus in this paper is on some of the essential considerations for instructional material development as these will be the most important factors in an educational system where personal interaction is minimized.

The coordination between task arrangements in the academic programmes and the management systems represent the key ingredients in the teaching-learning process in the distance learning system. If a mismatch between the two should occur, success of the programme is less probable.

Needs Assessment

Needs assessment is concerned with determining goals and identifying discrepancies between goals and status quo. It is the process of determining the gap in the results between 'what is' and 'what should be'. This gap in results is more than just academic; with gaps in resources, the means to the end, etc. The first refers to things, or the outcomes of activities which contribute to individual, group or societal 'self sufficiency', while the latter refers to activities which may lead to that end. The first may result in changed organizational goals, while the second may simply call for doing more or less without necessarily influencing the goals, either positively or negatively (Hunt, 1986). In education and training they form the basis of instructional design and curriculum development, and in organizational management the human specification plan.

Preparation of Instructional Materials

Attending to the needs of all and creating and maintaining the conditions under which academic learning can occur is increasingly difficult in the complicated and remote environment of distance education systems. We have to accommodate a more academically heterogenous population of students manifesting variety of learning needs.

It is true that there are epistemological and other differences on how instruction must be carried out. Hacker (1984) points out that internalisation of new facts, concepts, principles, and models are more frequently achieved by direct instruction methods as suggested by Gagne (1970) rather than by cognitive restructuring process favoured by Piaget (1964) and Bruner (1966). Dealing with able, mature and adult minds in distance education system, as the most cases may be, the attention of the instructional strategy should focus on the needs for a task analysis type of

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system. Learning should be planned rather than haphazard so that each person will come closer to the goals of optimal use of his talents. The materials developed, based on a task analysis with proper orienting activities and learning expectations clarified, should contribute towards optimum learning.

(a) *Task Analysis*

The task analysis type of strategy comes from the strong belief that success of instruction depends mainly on splitting a complex task to simpler tasks digestible to the learner. The move in this direction was stimulated by the work of Gagne and others (Gagne, 1970) who identified learning outcomes as sequential and prescriptive entities. Acquirement of problem solving behaviour was predicated on the acquisition of prerequisite discriminations, concepts or rules at lower level in an essentially linear progression. Further refinements of Gagne's model saw greater emphasis being placed on the role of information as an entity for analysis (Williams, 1977) and a sub-division of rules into structures and processes (Horn, 1973). In the task analysis, whether it be 'Top to Bottom Analysis' or 'Front-end Analysis', the instructional designer goes through all steps that are necessary for the development of actual materials. These include a decision making process for overcoming performance deficiencies, descriptions of mastery performance criteria, breakdown of jobs into simpler tasks and steps. The outcome of such a task analysis mapping in an instructional system is an increased probability of more efficient learning to take place.

The credibility of a task analysis type of instructional strategy is established beyond doubt by various researchers. Dealing with adults in a distance learning system and characteristics of the learners definitely call for this type of strategy. One should take note that the time factor which is available to each learner is minimum. With competition reduced to almost zero level and a dislike for rigidity, a more simplified, structurally understandable approach may be more efficient.

(b) *Orienting The Learner*

Several orienting activities have emerged during the past few decades. Gagne (1985) provides orientation to instruction by informing learners of lesson expectations. Advance organizers (Ausubel, 1968) are another type of lesson orientation which help to activate the cognitive structures of individual learners.

The importance of orienting activities is related to both cognitive theory building and instructional pedagogy (Hannafin and Hughes, 1986). From a theory building perspective, the effect of adjunct strategies designed to improve encoding must be better understood. Models for better understanding the effect of orienting information can be evolved to clarify relationship among new information within existing cognitive networks. Orienting activities can also aid retrieval by influencing schemata and as a result of supplying relevant cues.

(i) *Performance Expectations* : The expected learning outcomes must clearly be clarified in any instructional processes. According to Gagne (1985) stating performance expectations in advance of instruction serves several functions. Learners are made aware of either the general or specific nature, or both the general and specific nature of forthcoming instruction. Informing of expectations is believed to activate the learners' mental set (Gagne, 1975, p. 94). It is usually activated through instuctions which direct the learner to attend selectively to certain attributes of the instruction. Performance expectations can also function to focus attention to specific information considered central to the task. Statements of a non-explicit integrative nature, on the other hand, are more akin to general statements of performance expectations described by Gagne : "To guide attention without over-prescribing specific information or detail". Several authors have reinforced the necessity to include statements of expectations when producing instructional materials.

(ii) *Questions :* The use of questions prior to the textual information activate the learners' mental processes which focus on relevant information. This can be partially attributed to an increase in attention drawn to the criterion elements of the question. Where pre-questions are specific, intended but not incidental, learning is generally improved (Hannafin and Hughes, 1986). Learners tend to focus effort intensively on information related to orienting questions. Learners will try to identify meaningful relationship and transfer learning when not limited by very specific orienting questions (Clark and Voogel, 1985). Integrative questions require greater effort and processing during encoding, and can help promote learning of both low and high level lesson content (Glover, Plake and Zimmer, 1983). Learners may also view orienting questions as focussing mechanisms for lesson information but the clarifying function of pre-questions may indirectly improve motivation for lesson participation.

(iii) *Advance Organizers* : Ausubel's idea of advanced organizers comes from his view that learning and retention of unfamiliar but meaningful verbal material could be facilitated by advance introduction of subsuming concepts. Advance organizers act as subsumers of information whereby input can be collected into a more meaningful and inclusive scheme (Ausubel, 1960). In fact, proponents of advance organizers suggest that they provide a vehicle through which new information can be subsumed meaningfully within individual cognitive structures. Several advance organizers have been studied. Advance organizers in the form of programme titles, abstract superordinate generalizations, and conceptual questions are embedded effectively in many televised instructions. (Nugent, Tipton and Brooks, 1980). Ausubel advocates that the organizers appropriately relevant and with inclusive introductions that are maximally clear are to be introduced in advance of the learning material itself and are also presented at a higher level of abstraction, generality and inclusiveness; and since substantive content of a given organizer or series of organizers is selected on the basis of their appropriateness for explaining, integrating and interrelating the material they precede, this strategy increases the organizational strength of the cognitive structure. The principal function of the organizer is to bridge the gap between what the learner already knows and what he needs to know before he can successfully learn the task at hand (Ausubel, 1968).

Transmission of Materials

The delivery system forms one of the most important aspects in instructional strategy meant for distance education. This can be done through printed notes, radio/television lectures, video tapes and electronic messages. Though in a country like India with its vastness and remoteness and the complications in communication, one may think more towards printouts which can easily be transmitted to the learners. No doubt, it is the most important and easiest mode of communication. The effect of printed media cannot be forgotten and the researches in this field have shown that the printed word is more effective in certain domains than the others (Rothkopf. 1965). Though radio programmes are getting less interesting, one important area of interest emerging in this regard is television. With the government able to cover almost 70% population with its TV networks, television lectures become the most important component in any distance education system. Moreover, these lectures are becoming popular too. Once the TV lectures are prepared, Video taping is only a technician's job. These video cassettes could easily be sent to different centres for their worthwhile use. Of course media like TV requires a large audience to be cost effective.

The advent of television has not reduced the importance of newspapers which continue to be the main source of information. The recent experiment of Times of India (Ahmedabad, 1987) with English Grammer Lessons was found extremely interesting and educative. The recent survey conducted by the Operations Research Group (ORG, 1987) have clearly shown the dependence on newspapers as the primary source for news. While every second urban adult depends on newspapers for news only one in three depend on television and only one in ten on radio. Between newspapers and TV dependence on TV is higher in the north as compared to other regions (Rao, N.B.; 1987).

	Preferred News Source (India)			
	Newspaper	TV	Radio	None
North	38.5	47.3	9.7	4.5
East	53.4	29.5	13.9	3.2
West	55.3	32.8	8.1	3.8
South	57.6	28.2	13.1	1.1
Total	51.2	34.5	11.2	3.1

The dependence on newspapers is highest in the South and everywhere we notice that dependence on radio is marginal. This has a very clear message for the organizers of distance instruction system. Newspapers can become an effective media in distance learning taking fully into account the target population of that area. An efficient instructional designer can definitely make use of articles and other various references from newspapers also.

Technological advances in communications make physical distances less of a barrier. Developments over the last decade allow people to communicate across great distances at rapid speeds; masses of information can be reproduced and distributed simultaneously throughout the world; knowledge resources can be shared and interactions enriched by people who may never reach face to face. These technological advances also enable people to respond and pose questions directly to others around the country and conduct personalized interactions about topics of mutual interest.

Educational networking through electronic mess-

(*Continued on page 7*)

Education in Secular Perspective

D.P. Verma*

The New Education Policy has been widely discussed in academic and other important decision-making centres. The discussions have led to greater clarification and appreciation of not only the goals set, but of the concrete ways and means for bringing about a qualitative change in the educational set up at all levels. It is certainly worthwhile to set our sights high. Without it the distant destinations of far reaching importance are hard to reach. However, sometimes even sound and ideal policies fail when it comes to transforming them into practical realities. This happens not because of some inherent shortcomings or drawbacks in the policy formulations but for the simple reason that either the persons concerned do not come upto the desired expectations or the social environment is so vicious, venomous and vile that self or sectional interests alone become primary concern and the projection of negative attitudes seek to eclipse what is basically good and ideal in the broader and long range context.

In our country such a phenomenon is being painfully witnessed in the field of education, notwithstanding all the efforts which are afoot to reform the system so as to make it more relevant and worthwhile to meeting the challenge of the coming 21st century.

More than 36 years ago we gave to ourselves a Constitution which sought to weld us into a secular society. A policy came into being whose foundations were not based and whose visions were not to be circumscribed by any religion. We thought that we have taken the right steps to transform ourselves into a modern nation which would be wholly engaged in eradicating nerve breaking poverty through rapid industrialisation and technological advances. Education, naturally was to play a key role in this herculean exercise.

Our schools, colleges, and universities, we thought, would become the nerve centres of national integration, secularism, tolerance, pursuit of scientific knowledge and the truth. But then things have not gone the way they should have These institutions, however, instead of soaring high preferred to sink low.

The reason for this sordid state of things is not far to seek. There has been a complete dichotomy of purpose between the ideals enshrined in the Constitution and the objectives obtaining behind the establishment of majority of our schools and colleges. 'The single-religion-based' institutions, and in some parts of the country even caste-based institutions sprang up like mushrooms. The universities and relevant Govt. Departments, working under undue pressures, succumbed to varied pressures in granting them affiliation or recognition and even according financial support from the public exchequer. If these denominational schools and colleges had addressed themselves to the task of propagating true values and promoted mutual understanding by stressing the oneness of the fundamental principles underlying various religions, besides pursuing prescribed courses of study, one would have found ample justification in the establishment of these institutions. On the contrary, what we find is that these so-called education centres have been surreptitously or otherwise promoting communal and divisive feelings, which today are threatening the very fabric of our secularism. The poison of narrow loyalities and narrower outlook have gone down the spine and the result is so obvious for everyone to see. Perhaps, medieval minds and modern concepts go ill together. We swore by secularism; we are fighting for 'secluded lives'. The complacency with which we allowed things to go astray in the field of education is responsible for the growth of the monster of Communalism, that threatens to break into pieces what was attained after long years of struggle and innumerable sacrifices.

The concept of Secular State in less developed countries like ours demands the promotion of secular education, devoid of sectional and sectarian overtones. The right of education conferred on the minorities by the Constitution has been interpreted rather liberally and under its pretext certain unsavoury developments have taken place, the unpalatable results of which are being faced by us now.

Dr. Gopal Singh, Governor of Goa has rightly raised the question that in the light of some of our recent bitter experiences, the Government's attitude towards minority and other 'single-religion-based' institutions—Hindu, Muslim, Christian, Sikh—in the context of secular education needs to be amplified, nay, it needs to be reviewed and redefined. Our educational institutions, whether State owned or privately initiated

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**Former Registrar, Panjab University.*

should in no case be allowed to stoke further the fires of fundamentalism and fanaticism. It would require determined and sustained efforts to eradicate the paralytic effects of the dangerous malady.

Our schools, colleges and universities should be like beautiful nurseries and colourful gardens which refresh and enrich our social life and not places where wild weeds and thorny bushes grow unchecked, generating innumerable social health hazards. To compartmentalise the educational structures and to label these with the brand-names of this religion or that defeats the very purpose of imparting sound education. (Christian Institutions are a class apart). We in this country do visualise great goals and go to establish institutions wedded to the attainments of those objectives. But on the ground we mould and manipulate things in such a way, that the ideals recede into the background and only self or sectional priorities surface and engulf us.

Since our independence, universities in our country have multiplied 8 times—from barely 20 or so to over 160 now. Colleges have sprouted like Parthenium, and are mostly sectional in character. Of the universities, barring a few exceptions, these so-called institutions of higher education have so circumbscribed their vision, that they have not been able to transcend the character of 'local bodies'. It is a misnomer to call such an academic set up as a University. However, it is high time for us to realise that the dangerous portents emanating from single—religion-based institutions are now seriously taken note of, before it becomes too late. Perhaps it would not be an easy thing to alter or transform the hue and colour acquired by these institutions. Many would recall that an attempt to bring about a change in the names of the two central universities at Banaras and Aligarh (only the words 'Hindu' and 'Muslim' respectively were to be omitted) met with such stiff resistance that the Government felt compelled to drop the proposal. If that could happen at the national level, one just wonders what hornets' nests would be stirred almost everywhere in the country, if any measure is brought forth to delink educational institutions from their religious bases? Anyhow, a strong persuasive and educative effect in this direction is called for, in case we are not in a position to taking some hard decisions. But it should be clear as the day light that if we are deterred from taking hard decisions, then very hard times will strike us down with unbearable force and we will have no one else to blame for the sordid situation.

The New Education Policy envisions promotion of national unity and integrity. But already forces are at work to pierce the very root of our national values. Our teachers should focus their energies and efforts on something more important and vital, than merely clamouring for higher pay scales, which in any case are their due and much has been done to make them substantially attractive. In U.S A., the Government have felt deeply concerned because America is facing serious challenges to its supremacy in many fields from countries like Japan and has called upon the schools and the universities to upgrade their standards of instructions and research so that America stays ahead of everyone and successfully faces the risks. In India the challenge is that our very existence is at stake. Shall we not rise as one man to save the nation? ☐

INSTRUCTIONAL STRATEGY FOR DISTANCE EDUCATION

(*Continued from page 5*)

age systems can provide a powerful new medium for education (Cohen and Miyake, 1986). Message can be prepared in advance on a microcomputer and quickly transmitted across telephone lines. The characteristics of electronic mail definitely offer a great potential for creating a new environment for learning across the distances. Preparing the message before hand on a computer disk and sending them automatically at low rate hours enables preplanned centres to participate in the same at reasonable cost.

Periodical studies will have to be taken up to check up whether the medium is conveying the desired message to the target population. If these programmes were not viewed or understood in the desired way, what steps could be taken to make these more effective ?

Performance Assessment

Assessment is an integral part of any planned education. Evaluation process should take into consideration of the various policies related to resource availability and constraints. More imaginative and practical evaluation procedures should be designed to meet the demands of time; fully aware of the issues arising out of a perfect feedback system. The adequacy and the appropriateness will depend upon the various factors developing out of the instructional strategy itself. In any case, it should be a growth oriented assessment. ☐

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National Seminar on Energy Education

Department of Education of the Rohilkhand University, Bareilly recently organised a National Seminar on Engery Education. Hon'ble Syed Sibte Razi, Education Minister, U.P. Govt., inaugurated the seminar which was attended by over 60 academics from different parts of the country.

After an indepth discussion on different issues and objectives of energy education, the following recommendations emerged at the Seminar :

1. Energy education programmes in our country have yet to be established, therefore, the Govt. should be urged to emphasise energy issues in the educational plans and issues.

2. Energy education needs a prerequisite commitment at the indvidual and national level. A clear national policy on energy is thus essential and without this curriculum development for energy education would lack proper direction and purpose.

3. To be meaningful and significant, energy education programme must be linked to real world situations, and current national development plans.

4. The main hurdles at present are to prepare the lead teachers, to initiate teaching training programmes and develop materials for their use. The courses must be prepared without any delay in order to implement energy education programmes in schools.

5. Energy education should enable people to perceive the energy in its totality i.e. the totality of physical, biological, socio-economic and cultural complex.

6. The compendium of information relevant to energy education including a directory of sources of information about urban and rural resources and institutions, enlisting persons with appropriate expertise should be perpared and made widely available, so that, their expertise may be utilised in preparing energy action programmes.

7. As women are the main consumers of energy, therefore, special attention is needed to prepare and introduce the programmes on energy conservation for them.

8. Energy education should be integrated with cultural, social, economic and developmental needs of the society as well as with the fruitful, suitable, efficient and economic technologies and energy systems.

9. Development of functional values and favourable attitude towards different renewable sources/systems/appliances and awareness about preservation of the ecological balance among masses is to be an integral part of energy education programme.

10. Energy Education Programme and Energy Policy must conform to other related policies like population, pollution, human settlement, housing, environmental conservation, etc.

11. All sections of human society must be exposed to some forms and measures of energy education for arousing their awareness, sensitivity and perspectives of energy problems and thereby motivate them to get involved in worthwhile energy action programmes.

12. Adequate place to energy courses in the syllabi must be given at all levels of education i.e. energy education must be introduced from primary classes and continuing through all formal and non-formal stages of education.

13. Examination of major issues related to energy problems from local, regional, national and international view points is essential, so that, students may receive and develop insights to solve the energy problems by devising and modifying the various devices/systems, according to the needs of their region/country.

14. To promote values, attitudes and necessity of local, national and international co-operation in the conservation, conversion, prevention and invention of energy sources and solution of energy problems. The mass media can be used as a most effective tool in generating awareness and stimulating motivation among people of all sectors of the society.

15. To develop the awareness among journalists and other media people, more seminars and workshops on energy education for these people should be organised. Besides this, a nationwide training/reorientation/refresher programmes in energy for educators, teachers, planners, scientists, decision makers and other professionals should be started.

16. A national level committee may be set up to develop the energy education programmes, to review the progress and evolve required policy at the national level giving due consideration to the recommendations of this seminar.

17. An information exchange network on energy education should be set-up at the national level.

18. Regional and international

co-operation activities in energy education including speedy information transfer should be given priority by muli-lateral agencies.

19. Energy topics should be included in competitive examinations held by Public Service Commission, Agricultural Recruitment Board, Banking Recruitment Boards, Army Service Board, etc. and persons with well developed energy consciousness should be preferred in recruitment at all levels.

20. To further intensify the activities related to energy education, the appex bodies like UGC, DNES, DST, CSIR, Ministry of Energy, etc. must take an initiation to establish a separate cell/panel on energy education, information and training, in some selected universities, with the following objectives :

(a) To increase public awareness with regard to the state of environmental pollution, human health and energy crisis.

(b) To include the responsibility of promoting the use of non-conventional energy sources, saving and transformation of energy and thus controlling the ecological and environmental pollution through public education.

21. Extension programmes in the area of energy education should be introduced at all levels of education and special training be given to teachers for this purpose.

22. The chief concern of the industries is to affect savings in their respective sectors and to substitute renewable sources for oil and electricity as far as possible within the constrains of their economy. To develop an effective and meaningful programme in this direction, strong inter-disciplinary programmes, therefore, are needed to be developed to generate qualified and competent manpower.

In addition to these general recommendations, the Seminar made detailed recommendations for both formal and non-formal education. Under the formal education, recommendations were made under the sub-heads—Primary & Secondary Levels, and University Level and Teacher Education. Recommendations in respect of the latter are as follows :

University Level & Teacher Education

(i) UGC, DNES or other similar apex bodies should establish energy curriculum development centres by constituting a body of experts for preparing a graded curriculum for different levels. Content analysis of present syllabi is also to be done by the experts' committee. UGC can make the compulsion on universities to induce the adoption of energy curricula.

(ii) The universities may start at postgraduate level either a special paper in some related subjects e.g. Physics, Bio Chemistry, Bio Physics, Chemistry, Marine Biology, Genetics, Plant Sciences, etc. or a full two years master degree programme in Energy Science. For this UGC/State Govt., may sanction additional grant to encourage such programmes. The inter-departmental approach to teaching and taking up projects of local relevance should be encouraged.

(iii) At the graduate level also it is proposed to integrate energy topics into the various subject streams such as humanities, physical, biological and social sciences. This can be done by restructuring of courses at graduate level.

(iv) Graduate and postgraduate programmes in Energy Management should also be started at few institutions/universities.

(v) The courses in management, namely, business management and engineering should be reoriented to include topics of energy management. Decision & policy makers must be provided orientation training in energy management.

(vi) Courses on energy management should be started at the staff training colleges or similar other centres for training a large majority of administrators, policy makers and other target groups. Imparted training should be based on local and regional problems and should also be need oriented.

(vii) At graduate level theoretical knowledge of various energy systems—solar, wind, tidal, geothermal, ocean, biomass, etc.,—they must comprise training programmes together with their construction, maintenance and appliances. So that, the persons who are specially trained in dealing with the various aspects of energy, its use and conservation, should go to villagers and apprise & educate the rural folk on the utilization, saving and conservation of the energies available to them.

(viii) At the undergraduate level in Science, Engineering, Medical, Veterinary and Agriculture, separate courses could be designed dealing with the use of conventional & non-conventional energy sources in relation to the specialised areas. Although, some IITs have taken initiative in this direction yet energy education is still needed to be introduced in Polytechnics & IITs as part of existing courses.

(ix) Various teaching and training institutions in collaboration with DNES, CSIR, DST, UGC or various state agencies should shoulder the responsibility of educating users, specialists, trainers and manufacturers of equipments through long and short terms teaching training programmes.

(x) The possibility of starting an inter-disciplinary postgraduate/research programmes should be explored in few selected universities.

(xi) As the teaching methods; (i) question answer, seminar, workshops, etc. (ii) lecture-cum-demonstration and (iii) giving opportunity to work in real situations, are some effective instructional devices, that can be used at tertiary level to teach energy courses.

(xii) Energy education be included in the syllabus of teacher education. Both pre-service and in-service teacher training programme in energy should be started.

(xiii) Carefully drawn syllabi for diploma, degree and postgraduate levels are urgently needed.

(xiv) Social philosophy of energy education, energy policy with its full implications be explained to teachers, teacher educators by organising short term programmes.

(xv) Energy protection/conservation law should be taught at L.L.B. level and facilities for specialisation in energy law should be provided.

Research

(i) Apex bodies should provide financial aid for conducting researches in the area of energy education.

(ii) Research in appropriate technology in energy education should be promoted.

(iii) Problem solving and action oriented case studies on energy issues of local significance should be taken up and instructional materials based on these, be prepared.

(iv) Survey of present attitude of people towards the renewable energy should be carried out to serve as base line index to gauge the impact of energy education.

(v) Pedagogic methodology for energy education as well as examination & evaluation must be evolved in a scientific manner.

(vi) Energy researches should be focussed on issues of national/regional importance and lead to strategies of containment and solution. The research findings should provide guidance & help in taking the decisions by planners and policymakers.

(vii) The universities should undertake advance multidisciplinary researches in energy subjects for imparting higher level teacher training programmes to offer consultancy in energy technology to technologists, experts, planners, decision-makers and energy managers.

Curriculum Development

(i) Curriculum in energy education suitable for different levels from primary to university have to be developed. Simultaneously with productive and required textbooks additional reading materials and audio-visual aids must also be prepared. The UGC/DNES may provide suitable financial assistance for this purpose.

(ii) The Department of Energy and UGC should undertake immediately the preparation of suitable curricula, teaching material and books for energy education. These agencies may establish curriculum development centres in selected universities.

(iii) The teaching of energy requires an integrated learning scheme. Its ojectives need to be elaborated and classified in a multi-disciplinary frame, involving disciplines like Physics, Applied Technology, Chemistry, Economics, Home Science, Environmental Science, etc., to bring expected behavioural changes in the students through several activities. In brief, the objectives of energy education might be :

(a) Functional information of facts
(b) Functional concept
(c) Functional understanding of principles
(d) Instrumental Skill
(e) Problem solving skill
(f) Scientific and Social attitude
(g) Appreciations
(h) Interests
(i) Value in life.

Further details can be had from the Organising Secretary of the Seminar, Dr. Beena Shah, Dean, Faculty of Education, Rohilkhand University, Bareilly.

Workshop on Value Education

A National Workshop on Value Education was recently organised by the Gujarat Vidyapith. Inaugurated by Shri I.J. Patel, former President, Association of Indian Universities, the conference was attended, among others, by Dr. Schouten and Dr. Van Gent from the Armsterdon and Leiden Universities of Netherlands, Dr. Larry Dossey from the United States of America, Shri G.B.K. Hooja, former VC, Gurukula Kangri

Vishwavidyalaya. Dr. T.K.N. Unnithan, former VC, University of Rajasthan and Prof. P.A. Patel Principal, College of Education, Gujarat Vidyapith directed the workshop. Prof. Ramlal Parikh, Vice-Chancellor of Gujarat Vidyapith presided.

After 5-days of intensive deliberations, the workshop recommended asunder ;

1. The following values need to be inculcated through education at all levels : Positive Non-violence; Service to others; Dignity of manual work; Scientific attitude; National Integration; Equality of religion (Sarva dharma Samabhavana); Cleanliness and public hygiene; World brotherhood; and Duties.

2. A content analysis of all the syllabi, courses and textbooks of all States be made to find out to what extent these are value oriented.

3. A handbook of value education both, through formal and non-formal education systems be published so that it can be used for value-education at all levels and in all categories of education.

4. An anthology of readings in value education be compiled and published particularly of selections from Indian Thinkers of 20th Century from Tilak to Gandhiji and Vinoba Bhave.

5. Case studies of experiments in value-education undertaken by various institutions should be published.

6. A cell for documentation of such writing which promote value-education be set up in the Gujarat Vidyapith Library.

7. University Grants Commission (UGC) should be asked to address all the universities to introduce value-education programmes in the foundation courses at the undergraduate level.

8. The NCERT should prepare audio-visual materials for value-education programmes, both at formal and non-formal levels.

9. Possibility be explored to undertake a transnational, cross cultural project on value education with a view to give global dimension to education in human values aimed at promoting world brotherhood.

10. A national convention of all experimental institutions engaged in value-education be organized under the auspices of the Gujarat Vidyapith next year.

National Youth Week Celebrations

Association of Indian Universities (AIU) and the Department of Youth Affairs and Sports, Govt. of India, jointly organised a colourful cultural evening on 13 January 1988 to mark the National Youth Week in commemoration of Swami Vivekanand's birthday. Organised at Azad Bhawan, the headquarters of the Indian Council for Cultural Relations, the programme attracted 70 Student artists from seven universities.

The cultural items comprised Folk Dances, Classical Dances, Group Songs, Light Vocal, Instrumental Music and Mime. These were selected from amongst those presented at the Inter-University North and West Zone Youth Festivals held recently at Aligarh Muslim University, Aligarh and University of Bombay, Bombay.

The programme commenced with a mellifluously rendered Bhajan by the students of SNDT Women's University, Bombay. This was followed by Group Songs presented by SNDT Women's University, Bombay and Dayalbagh Educational Institute (DEI), Agra. The theme of the song presented by SNDT Women's University students was that though we hail from different states and speak different languages yet we are one in spirit.

Holi Folk Dance by students of Dayalbagh Educational Institute, Agra.

The Group Song by DEI, Agra spoke of the sacrifices of great leaders like Gandhiji, Nehru, Bhagat Singh, etc.

Folk Dances performed by the students of University of Rajasthan, Jaipur and DEI, Agra portrayed Holi, the festival of hope, aspirations and joy, which is celebrated in spring—the king of all seasons. When the crop is ready to be harvested and the peasant looks at the successful culmination of his efforts he expresses his joy through singing and dancing to the rhythm and beat of the drums, cymbals, manjeera and dholak. The dance was highly applauded by the audience. Rajasthan University students presented 'Chirmi' Folk Dance depicting how in the olden days, when the houses were without electricity at the time of wedding reception, ladies took 'Chirmi' on the top with fire to welcome the bridegroom and other guests. The Youthful dancers danced while welcoming the guests.

Mime, which regaled the crowd was performed by the students of DEI, Agra. The Mime portrayed the recently concluded Reliance World Cup during which skipper Abdul Qadir was shown bowling and the Umpire Dickiebird cuffing his cuffs.

The Santoor recital rendered by Nikhil Bidwalkar of the University of Jodhpur was highly impressive. Pushpinder Bhardwaj of Maharshi Dayanand University, Rohtak enthralled the audience with Sitar recital. The programme concluded with the singing of the National Anthem.

News from Abroad

Hi-tech Teaching

If the classrooms at Virginia Tech University become strangely empty next year, the professors can blame modern technology. Using a new communications system, due for completion in the autumn, students need hardly leave their beds.

Every dormitory room at Virginia Tech is to be linked to a cable television service, bringing six hours of courses from other universities, world-wide teleconferences by experts in various fields, and foreign language broadcasts. The university's own lectures will be available on videotape in the evenings.

In addition, each room will have the capacity to tap into Virginia Tech's central computer, and home-work will be both assigned and submitted by electronic mail.

It is believed that students who want to eat will still have to leave their rooms occasionally, but Virginia Tech is working on that one.

CENTRAL DRUG RESEARCH INSTITUTE
(Council of Scientific & Industrial Research)
Chattar Manzil Palace Lacknow-226001

Addendum/Corrigendum to Advertisement No. 1/88

Reference to our advertisement published in these columns inviting applications for various scientific/technical posts, the following is issued as Addendum/Corrigendum :

Addendum

6. **JR. Technical Assistant**—2 posts (1 post reserved for S.T.) (Rs. 1400-40-1800-EB-50-2300)

Qualification : B.Sc. with Chemistry as one of the subjects. Experience in Research/Development of processes for synthetic drugs and drug intermediates or chemical process industry desirable.

Job Requirement : The incumbent will assist in scale up studies concerned with R and D programme in the field of drug and drug intermediate. Has to work in shift for operation of chemical plants. Has to carry out literature survey and help in preparation of technical reports.

Corriegendum

The essential qualifications for Scientist 'B' is First Class M.Sc./Ph.D./M.V.Sc., but the experience mentioned against the posts no. 3 (i) to (ix) is optional and only desirable.

In post 3 (viii) under job requirement the sentence ending with "heat cell preparations" should read "heart cell preparations".

General Condition No. 5 : The date of requisition of application form by the candidate will be 29.02.88 and closing date for the receipt of the application will be **15th March, 1988.**

Other conditions will remain the same.

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month' while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research scholars and students of education are welcome to use these resources. The Library is open from 9-00 a.m. to 5-30 p.m. Monday through Friday. Access can also be had through Inter library loan for which requisition must be made through your Librarian.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

SOCIAL SCIENCES

Social Anthropology

1. Bais, Vinod Singh. *Bidi workers of Sagar District : A demographic study.* HS Gour. Dr. A.N. Sharma.

2. Pandit, Lala. *Madhya Pradesh ke mahavidyalayin vivahit pradhyapikaon ke parivarik sambandhon ka ek samajshastriya adhyayan.* HS Gour. Dr. Ramesh Choubey and Dr. Shrinath Sharma.

3. Singh, Vijay Prakash. *Panch Koyala Khandesh mein karyarat Gaur janjatiya shramikon per audyogikaran ka prabhav.* HS Gour. Dr. Ramesh Choubey and Dr. Shrinath Sharma.

4. Uppal, Devinder Kaur. *Family welfare programmes in villages and communication behaviour : A micro level study.* HS Gour. Dr. P.K. Srivastava.

Economics

1. Farkhondeh, S.M. *A comparative study of sugar industry in Iran and India with special reference to Shushtar and Kolhapur Regions.* Shivaji. Dr. D.H. Hindocha.

2. Lalwani, Kalpana. *Working of regulated markets in M.P.* Devi Ahilya. Dr. M.V. Kapde.

Law

1. Bains, Mangal Singh. *The legal regime of outer space: Problems and prospects.* Panjab. Prof. Veer Singh.

2. Clana, Mohan Singh. *Charitable trusts: A socio-legal study with special reference to tax laws in India.* Panjab. Prof. Bal Krishna.

3. Kamal, Udham Singh. *Independence of the judiciary : The Indian experience; a Constitutional and functional study.* Panjab. Dr. V.K. Bansal.

4. Prem Nath. *A study of the power to promulgate ordinances under the Indian Constitution with special reference to the State of Punjab.* Panjab. Dr. V.K. Bansal.

Commerce

1. Abdul Rasheed, A. *Evaluation of the working of Kerala State Film Development Corporation.* Kerala. Dr. M. Sarngadharan.

2. Aggarwal, Nisha. *Accounting systems and practices in Panjab University and its colleges.* Panjab. Dr. S.C. Vaidya.

3. Amandeep. *Profits and profitability of Indian nationalised banks.* Panjab. Prof. B.B. Tandon.

4. Dewan, Vipin Kumar. *Performance of State Electronics Development Corporations in India.* Panjab. Prof. T.N. Kapoor.

5. Gupta, Vinod Kumar. *Human resource management in cooperative institution in Sagar Division.* HS Gour. Prof. H.C. Saini.

6. Sudheer, S.V. *Tourism in Kerala : Problems and prospects.* Kerala. Dr. C.N. Purushothaman Nair.

Business Management

1. Gabriel, Nwachukwu U. *Executive training and development : A comparative study of public and private enterprises in and around Chandigarh.* Panjab. Dr. A.K. Srivastava.

2. Raha, Shankar Kumar. *Market structure, conduct and performance of training industry in Bangladesh.* Panjab. Prof. S.P. Singh.

3. Rekha Rani. *Management control systems and practices State Road Passenger Transport Undertakings of Panjab.* Panjab. Dr. S.C. Vaidya.

4. Sood, Smriti. *Marketing strategy of selected units in the organised sector of consumer electronics industry in India.* Panjab, Prof. T.N. Kapoor and Dr. Satish K. Kapoor.

HUMANITIES

Philosophy

1. Koshy, Abey. *The concept of irrational in Nietzsche.* Kerala. Dr. K.C. Chacko.

2. Leo, Antony. *Conflict resolution in Gandhi : Some aspects.* Kerala. Dr. K.C. Chacko.

Language & Literature

English

1. Sharma, Sushma. *Existentialism in the novels of Shashi Deshpande.* HS Gour. Dr. A.K. Awasthi.

Sanskrit

1. Anuragini, Veena. *Katha Saritsagar mein nari.* HS Gour. Dr. Kusum Bhooriya.

2. Maniappan, R. *Pratyabhijnanadarsana and Abhinavabharati with special reference to the bhavadhyaya and rasadhyaya of natyasastra.* Kerala. Dr. B. Karunakaran.

Hindi

1. Agrawal, Asha. *Prasad sahitya mein shaivdarshan ka paribodh evam samahar : Ek smagra drishti.* Devi Ahilya. Dr. Badri Prasad Birmal.

2. Billore, Asha. *Hindi ke pramukh anchalik upanyas aur Bhartiya janjeevan.* Devi Ahilya. Dr. D.K. Chauhan.

3. Tripathi, Surekha. *Srijnatmak aur Ajyeya kee kavita.* Devi Ahilya. Dr. Rajendra Mishra.

4. Yadav, Surendra. *Mohan Rakesh aur unka natya sahitya.* Devi Ahilya. Dr. Rajendra Mishra.

History

1. Thorat, Atmaram Gopalrao. *History of prohibition in Maharashtra, nineteenth century.* Shivaji. Dr. A.M. Sutar.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Psychology

1. Chhotu Ram. *Psychometric study of variations in cognitive abilities among discret genetic population.* Rajasthan. Prof. S.N. Sinha.

2. Shailendra Singh. *Executives under stress : Explorations in the structure and dynamics.* IIT, Kanpur. Dr. Arvind K. Sinha.

3. Singh, Pushpa. *A study of managerial styles and interpersonal attraction.* Rajasthan. Dr. S.N. Sinha.

Sociology

1. Bal, Gurpreet. *Blacksmiths : A study of an occupational group.* Panjab.

2. Brahmchari, Mohan Kumar. *Diffusion and adoption of agricultural innovations : Myth and reality, A study in selected villages of Sikta Block in West Champaran District in Bihar.* JNU. Dr. Nirmal Singh.

3. Jha, Gulab. *Caste and the Communist movement in Bihar with special reference to Madhubani District.* JNU. Dr. Nirmal Singh.

4. Patel, Aparajita. *Modernization of Hindu women : A socio-cultural study conducted in middle class families of Jabalpur.* Durgavati. Prof. R.K. Gupta.

5. Sharma, Anita. *Modernization and status of working women in India : A socio-economic study of working women of Delhi.* Magadh.

Social Anthropology

1. Tarachand, K.C. *Women in sacred prostitution : A*

study of Devadasi custom in Karnatak. Karnatak. Dr. K.G. Gurumurthy.

Political Science

1. Mandloi, B.R. *Bharat ka swadhinata andolan aur majdoor sangathan.* Vikram. Dr. Shiv Sharma.

2. Sharda, Nil Kanth. *Child legislation in India : Its political, social and economic dimensions.* Panjab.

3. Subhash, Manju. *Rights of the religious minorities in India : A study of constitutional provisions and its practice.* Delhi.

4. Tiwary, Diwakar. *The concept of state in the Mahabharat.* Delhi.

5. Vohra, Kiran. *Pakistan's foreign policy : A study of Pak-India relations, 1970-76.* Delhi.

Economics

1. Agarwal, Gopal Prasad. *An analysis of utilisation of farm loan by farmers provided by financing institutions in Bundelkhand Region of Madhya Pradesh.* HS Gour. Dr. S.P. Johri.

2. Awasthi, Geeta. *Madhya Pradesh kee vrihad sinchaen pariyojanaon ka lagat-labh vishleshan.* Devi Ahilya. Dr. V.D. Nagar.

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Law

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2. Vishnoi, S.C. *A study of the implementation of the Vienna Convention on Diplomatic Relations, 1961.* Rajasthan. Prof. S.R. Bhansali.

Education

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Management

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GURU GHASIDAS UNIVERSITY

Rishi Kutir, Nehru Chowk,
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No : 512/UTD/87-88 Dated : 21-1-88

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Applications in the prescribed form are invited for the following posts. Forms with details of the prevailing UGC qualifications will be supplied on request, which should be accompanied by a self-addressed stamped envelope with postage stamps of Rs. 4/-. Seven copies of application, complete in all respects, must reach the undersigned latest by 19-2-88. The Dearness Allowances and other perquisites will be as per University statutes :

1. Professor—One post each in Economics & Commerce. (Rs. 1500-2500)*
2. Reader—One post each in Library Science and Physical Education. (Rs. 1200-1900)*
3. Lecturer—One post each in Library Science, Physical Education, Economics and Commerce. (Rs. 700-1600)* (The post of Lecturer in Economics is reserved for SC/ST candidates.)

*(Subject to revision of pay scale from time to time).

Qualification

(a) **Essential** : As prescribed by the University Grants Commission, New Delhi for Professor, Reader & Lecturer in the Universities.

(b) **Desirable**

(i) For Professor and Lecturer in Economics

Preference shall be given to candidates specialised in or having experience of research and studies in the field of weaker section of society particularly tribals, Harijans and women, and in rural development.

2. No. T.A./D.A. will be admissible to the candidates, if called for interview. The Selection Committee may consider the case of an eminent/suitable person in absentia.

3. Applicants who are in the employment of Govt./Semi Govt. Organization/Educational Institute or of any Govt. Undertaking must send their applications through proper channel but, advance copy should reach in time.

4. The University reserves the right not to fill up the posts.

R.C. Parmar
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BANGALORE 560034

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Job Requirements : The work involves design and development of electronic circuits and control systems for the instruments at the telescopes and interfacing them to mini/micro computers.

2. Electronics Engineer : 2 Posts (UR-1, ST-1)

Scale of Pay : Rs. 2200-75-2800-EB-100-4000

Qualification (Minimum)

M.E. or M.Tech degree in Electronics/Electrical communication Engineering/Computer Science with one year's experience in Analog and Digital Electronics or B.E./Tech with I class in Electronics with 3 year's experience in designing electronics systems using analog and digital integrated circuits.

Desirable : Knowledge of microprocessors and assembly level programming.

3. Engineer Associate 2 Posts (UR-1, SC/ST-1)

Scale of Pay : Rs. 2000-60-2300-EB-75-3200-100-3500

Qualification (Minimum)

B.E/B.Tech I class in Electronics/Electrical Engineering/Computer Science.

OR

M.Sc. degree in Physics with Electronics as special subject, with one years's experience in digital circuits.

Desirable : Knowledge of maintenance of Electronics instruments and control systems.

Candidates suitably qualified otherwise for posts 1, 2 and 3 can also apply.

HOW TO APPLY

1. Applications on plain paper in English stating (a) Post applied for (b) Name in full (c) Father's name (d) age/date of birth (e) Qualifications giving names of the Institution attended, examinations passed with year and grade commencing from School Leaving Certificate Exam (f) Permanent address (g) Present address (h) Details of previous experience (i) Details of presen employment, address of the employer and the salary drawn presently (j) Salary expected (k) Whether Ex-serviceman/SC/ST, together with copies of qualification, age certificates (SC/ST candidates should attach a copy of the caste certificate) should be sent to the Administrative Officer, Indian Institute of Astrophysics, Bangalore-560034, on or before **February 20, 1988.**

2. Separate applications are required for each post. Please write clearly the post applied for on the envelope.

3. All the above posts carry allowances admissible under the rules of the Institute, which are the same as applicable to Central Government employees.

4. Those employed in Government Departments/Public Sector Undertakings should apply through proper channel.

5. Age limit for all positions is 35 years as on February 20, 1988, relaxable in exceptionally qualified cases.

6. Outstation candidates called for interview will be paid second class return railway/bus fare by the shortest route.

NO INTERIM ENQUIRIES WILL BE ENTERTAINED. CANVASSING IN ANY FORM WILL BE A DISQUALIFICATION

UNIVERSITY OF ROORKEE

ROORKEE

Corrigendum against Advt. No. Estt (A)/1/A-86 (Advt.)-88 dt. 8.1.1988

B. DEPARTMENT OF HUMANITIES & SOCIAL SCIENCES

For Readers : The following correction be read :

Against Post No. 2 Managerial Economics/Labour Economics/ General Management it should be IT instead of IR.

Against Post No. 4 Economics/History/Russian/German, it should be IR instead of IT.

D. AUDIO VISUAL RESEARCH CENTRE

The qualifications for Cameraman (Grade-I) are as under :

Essential : Diploma or Degree in Cinematography from recognised Institute.

Desirable : 3 Years experience in Motion Picture/T.V.(Video) Photography. (The experience requirement is relexable under exception case).

REGISTRAR

SHIVAJI UNIVERSITY
KOLHAPUR
Advertisement No. 27
Dated : 14-1-1988

Applications are invited for the following posts in the University Post-Graduate Departments.

PROFESSORS 17 Posts : One each in-*1 Chemistry (Organic Chemistry) 2 Chemistry (Structural Inorganic Chemistry) 3 Zoology (Animal Physiology/Entomology) *4 Zoology (Animal Physiology/Entomology, or Environmental Biology) †5 Botany (Mycology/Plant Protection) 6 Physics (Electronics/Solid State Physics/Energy Studies) 7 Geography (Human and Settlement Geography) 8 Physics (Applied Industrial Electronics) 9 Geology, 10 Mathematics (Pure Mathematics) 11 Economics (Public Economics/State Finance) 12 History (Maratha History/History of Modern Maharashtra) 13 Politics (Public Administration) 14 Library Science (Library and Information Science) §15 English (Linguistic and Contemporary English/American Literature) 16 English (Temporary upto 31-7-1989, likely to be permanent) 17 Marathi (Old Literature and 19th Century Literature).

READERS 10 Posts : One each in-†18 Chemistry (Bio-Chemistry/Bio-Technology) *19 Physics (Electronics) §20 Statistics (Demography/Statistical Ecology) *21 Mathematics (Computer Science/Algebra) *22 Physics (Applied Electronics) 23 Chemistry (Polymer Chemistry) 24 Sociology (Industrial/Urban Sociology/Mass Communication) 25 Journalism and Communication Science §26 English (Applied Linguistics/Commonwealth Literature) 27 Fine Arts (Music)

LECTURERS 13 Posts : One each in-†28 Chemistry (Physical Chemistry) § 29 Chemistry (Bio-Chemistry 30 Chemistry (Geochemistry/Coordination Chemistry) 31 Botany *32 Physics (Theoretical Physics/Nuclear Physics) *33 Physics (Solid State Physics/Nuclear Physics) 34 Statistics †35 Economics (Industrial Economics/Money and Banking/Cooperation) †36 Library Science †37 Journalism and Communication Science *38 Education (Experimental Psychology & Education) § 39 Fine Arts (Music) 40 Fine Arts (Dramatics).

1. Posts marked with * are reserved for S.C. Candidates.

2. Posts marked with † are reserved for S.T. candidates.

3. **Posts marked with § are reserved for D.T.V.J. candidates.**

4. Posts at Sr. No, 1, 4, 5, 15, 18, 19, 20, 26, 29, 32, 35, 36, 37 & 39 are reserved for respective reserved candidates and are being advertised for the first time. If suitable qualified candidates belonging to respective reserved categories are not available or are not found suitable, these posts will be treated as open and will be filled in by candidates from open category for the academic year.

5. Posts at Sr. No. 21, 22, 28, 33, 38 are for respective reserved categories only.

6. Posts at Sr. No. 8, 9, 22, 23 are for the Shivaji University Centre for Post Graduate Studies at Solapur.

7. Posts at Sr. No. 2, 3, 5, 6, 7, 11, 12, 13, 14, 15, 17, 19, 20, 24, 25, 27, 29, 30, 34, 37, 39, 40 are U.G.C. VII Plan posts and initially these posts will be for a period of five years but are likely to continue.

8. Post at Sr. No. 16 : Professor in English-Initial appointment will be upto 31-7-1989 but is likely to be made permanent.

9. Post at Sr. No. 23 : Reader in Chemistry-candidates who have specialisation in polymer chemistry, candidates who have M.Sc. in Organic Chemistry and Ph.D. and Research in Polymer Chemistry can also apply. Preference will be given for candidates having M.Sc. and Ph.D. in Polymer Chemistry.

PAY SCALES

Professor : Rs. 1500-60-1800-100-2000-125/2-2500.

Reader : Rs. 1200-50-1300-60-1900.

Lecturer : Rs. 700-40-1100-50-1600.

Likely to be revised as per U.G.C. new scales.

QUALIFICATIONS

1. **Professors** : An Eminent scholar with published work of high quality, actively engaged in research. About Ten years' experience of teaching and/or research. Experience of guiding Research at Doctoral level, OR An outstanding scholar with establised reputation, who has made significant contribution to knowledge.

2. **Readers** : Good academic record with a Doctoral Degree OR equivalent published work. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) Production of Teaching Materials. About five years' experience of teaching and/or research provided that at least three of these years were as Lecturer or in an equivalent position. This condition may be relaxed in the case of candidates with outstanding record of teaching/research.

3. **Lecturers** : (A) Doctorate Degree or research work of an equally high standard; and (B) Good academic record with at least Second Class, [(C) in the seven point scale] Master's Degree in relevant subject from an Indian University or an equivalent degree from a Foreign University.

In case of post of Lecturer in Geo-Chemistry, the candidate may be M.Sc. in Chemistry or in Geology with specialisation in Geo-Chemistry.

The candidates must have teaching/professional experience and/or research publications in the specialisations (if any) shown against the respective posts.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of qualifications prescribed in (B) above.

Provided further that if a candidate possessing a Doctor's Degree or equivalent research work is not available or is not considered suitable, a person possessing a good academic record (weightage being given to M. Phil. or equivalent degree or research work of quality) may be appointed provided he has done research work, for at least two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research of high standard/research work of equivalent high standard within eight years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

Prescribed application forms (eight copies) can be had from the University Office. Desirous candidates are requested to send Indian Postal Order of Rs. 15/- only.

Eight copies of application along with necessary enclosures attached to each copy of the application should reach the

Registrar, Shivaji University, Vidyanagar, Kolhapur 416 004 on or before **22-2-1988.**

Dr. B.P. Sabale
REGISTRAR

ANDHRA PRADESH AGRICULTURAL UNIVERSITY

ADMN. OFFICE 'RAJENDRANAGAR' HYDERABAD-500030

Advertisement No. 1/RC/88

Dated : 16.1.1988

Applications in the prescribed form together with a Registration fee of Rs. 10/- are invited for the undermentioned posts in Andhra Pradesh Agricultural University so as to reach the Registrar Andhra Pradesh Agricultural University Administrative Office, Rajendranagar, Hyderabad-500030 on or before **20.2.1988.**

1. DEAN, FACULTY OF AGRICULTURE
2. DIRECTOR OF AGRICULTURAL EXPERIMENT STATIONS (DIRECTOR OF RESEARCH)

Scale of Pay : Rs. 1500-60-1800-100-2000-125/2-2500 (Vth Plan UGC scale) and special pay of Rs. 250/- in addition to usual allowances admissible as per University rules.

Qualifications : 1. DEAN, FACULTY OF AGRICULTURE

Essential

(a) A Bachelor's degree in Agriculture.

(b) Ph.D. or equivalent degree in any branch of Agricultural Sciences.

(c) A minimum of twenty years of experience in teaching/research/extension in Agriculture, out of which atleast seven years should be as Professor/Senior Scientist/Associate Director or equivalent rank.

(d) Significant professional achievements in his field of specialisation/activity.

Desirable

(a) Experience of teaching undergraduate and post-graduate students in the course-credit system.

(b) Knowledge and experience of organising and administering educational programmes.

2. DIRECTOR OF RESEARCH

Essential

(a) A Bachelor's degree in Agriculture

(b) Ph.D. or equivalent degree in any branch of Agricultural Sciences.

(c) A minimum of twenty years of experience in teaching/research/extension in Agriculture, our of which at least seven years should be as Professor/Senior Scientist/Associate Director or equivalent rank.

(d) Significant professional achievements in his field of specialisation/activity.

Desirable

(a) Experience, as part of duties, in conducting basic/applied research of high quality as evidenced by published work/technologies developed.

(b) Knowledge and experience of planning, organizing and administering research programmes.

Note : The experience prescribed for both the posts shall be reckoned as on the last date prescribed for receipt of applications.

3. The term of appointment for both the posts shall be three years.

4. Those who have already applied for the posts in response to the advertisement No. 1/RC/87, **dt. 22.7.87** and possessing the qualifications as prescribed in this advertisement need not again apply. They may, however, furnish such additional information as may be necessary keeping in view the present qualifications, so as to reach the Registrar on or before the last date prescribed for receipt of applications".

5. Applicants other than those in the service of APAU should send the applications through their employers so as to reach the University on or before the last date.

Note : The inservice teachers of APAU may send applications direct to the Registrar.

6. Application forms can be had from the Registrar, Andhra Pradesh Agricultural University, Administrative Office, Rajendranagar, Hyderabad-500030 on remitting Rs. 10/- in person or through a crossed Demand Draft drawn from any nationalised bank in favour of the Comptroller, A.P.A.U. Rajendranagar, drawn on S.B.H. Rajendranagar branch for obtaining it by post. A self addressed and stamped Rs. 2-50 cover of the size 35cm x 15cm should be sent with the requisition for application form.

Applicants, when called, should appear before the selection committee for interview at their own cost.

K.M. Azam
REGISTRAR

GURUKULA KANGRI VISHWAVIDYALAYA HARDWAR

ADMISSION NOTICE

P.G. DIPLOMA in Computer Science

Applications are invited (including Entrance Test Fee etc.) on prescribed form obtainable from Registrar, Gurukula Kangri Vishwavidyalaya Hardwar-249 404 on payment of **Rs. 30/-** in cash/M.O. for admission to one year "Postgraduate Diploma in Computer Science and its applications".

Eligibility Conditions : The candidate should have secured at least 55% Marks in M.Sc./M.A./B.E. examination in any subject with Mathematics as a major subject at graduate level and should possess at least throughout IInd class career from High School to Graduate level.

Admissions will be strictly on the basis of Merit and Entrance Test. Last date for receipt of applications is **25th Feb., 1988.**

Dr. Virendra Arora
REGISTRAR

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Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association

Editor :

SUTINDER SINGH

In Celebration of the Book

'Whatever mankind has done, thought, and achieved is found in the magical pages of the books', said Thomas Carlyle. Maxim Gorky went a step further when he reminded us that 'whatever man has done, and is doing, is an expression of his soul. His art and science manifest his noble instincts. They become forceful and vital when they are embodied in books. Jean-Paul Sartre summed it up when he said 'Whatever is written is an image of our society'. Books are indeed an expression of our perceptions. Education aims at arousing the potentialities of the human mind to channelise them to productive uses. Books help accomplish it in the best possible manner.

Ralph Waldo Emerson said, ' 'Tis the good reader that makes the good book'. And we do not seem to be good readers The plain truth is that we do not lay much stock by the books. It is common knowledge that students and teachers spend minimal time in the library. We just refuse to appreciate how much better students would be were they able to use more skilfully the library facilities. Of course many teaching staff are themselves unskilled in library use. It is surprising how many of them rarely seem ever to be in the library themselves. But are our libraries free from the blame ? Are not most of them aflicted by the custodial approach of the library personnel that reflect little of information services ? Have we not forgotten the dictum handed down to us by Socrates : 'A library should not be the shrine for worship but should be the delivery room for birth of new ideas' ? Are the libraries inviting enough that the students and academics should feel impelled to visit by the creative dynamic attitude of the professionals to be helpful ? These are some of the questions that require to be faced if we are to find an effective answer to the almost absent, or sharply declining, reading habit. What is called for is not only adequate funds be injected into the libraries but also an objective audit of their performance.

If the scourge of illiteracy bothers the nation it is equally alarming to note that the educated are functionally illiterate. Either the books that they need are not available, and if at all they are available, they are just not accessible. This situation is a clear pointer to the absence of a system of living, vibrant libraries. According to a recent Unesco study the rate of growth of literacy in our country is one per cent per year. Assuming that the population will remain constant, we will need atleast another 66 years to be a literate nation. And who does not know that making this assumption is nothing but an exercise in self deception. What is needed is an effective public library system. We have neglected our libraries for too long. One is only to look into the reports of various committees and commissions and the scarce mention that the libraries find in them to convince one self. It is hard to reconcile this situation with the emphasis the New Education Policy places on the expansion of formal, and particularly non formal education. If at all we want to push up the literacy rate, and are serious in our plans to expand educational opportunities, we have to back them up by a network of libraries set up through effective library legislation. Achievements of Cuba, Turkey, Iraq, etc. in banishing illiteracy show us the way that literacy drives are successful only when the literacy centres are backed up by adequate library provision.

Books have been under constant attack. Some times from intolerant governments that are afraid of books and proscribe them. They often forget, nay ignore, the words of John Ruskin. 'If a book is worth reading, it is worth buying'. However, a more serious challenge to the embattled book comes from the television and other electronic mass media. These have encroached upon whatever little time we can afford for reading in the fast life of today. Everyone is convinced that though television is a better media for entertainment, it is the book that holds its own in the performance of the educational function. One will also agree that properly handled, television can be more of a friend only if we were to improve our programmes and design them to promote the reading habit. It could be easily done through programmes introducing upcoming authors, reviewing books and presenting book abstracts.

We are assured that the future of the book is rather secure against the onslaught of microform publications because of its inherent strength reflected in the convenience of its use. It is in celebration of the invincibility of the book that we dedicate this special issue of University News to the 8th New Delhi World Book Fair being organised by the National Book Trust, India in collaboration with the Federation of Indian Publishers and other book trade organisations from 5th to 15th February, 1988. □

National Book Trust and the Publishing Scene in India

Anand Sarup*

Like everything else in India, the Publishing Scene also presents sharp contrasts, with a few, selected beautifully printed, exquisitely illustrated and unbelievably expensive books in English at one end and cheap, smudgy, poorly bound paperback novels with formula mixture of mystery, romance and violence at the other end of the spectrum. As in so many other spheres, the evidence of the existence of the technical capability to produce almost anything of any quality is there but somehow, it comes into play to a very limited extent because most publishers can survive quite easily by swimming along the current or functioning within a protected market producing approved textbooks for schools, reprints of or commentaries on religious and literary classics, titles on scientific or socio-economic research commissioned by National bodies like the I.C.S.S.R., I.C.H.R., etc. and limited editions of a few other books by new authors desperate enough to meet the cost of production.

While the above is a reasonably objective thumb nail sketch of publishing in India, one must admit that there are many publishing houses who have been venturing out of their protective cocoons to promote new authors, explore hitherto untouched areas and produce informative and interesting books on the flora and fauna, the cultural diversity and the socio-political issues facing the country. Notwithstanding the efforts of a few imaginative publishers, must give in to the inertia of the situation because the market for books is determined largely by an inert educational and literary environment, characterised by tremendous inequalities not only between the educated few and millions of illiterate masses but also by a skewed pattern of income distribution and a continuing dependence on foreign publishers for new books for the elite institutions. Even today, an author "arrives" in India only when he or she is published by a foreign or multinational publisher. The static situation in Indian publishing is best illustrated by the fact that even though the overall demand and consumption of paper has been going up from year to year, the demand of paper for book production has not been registering a significant increase over the last decade.

As an intellectual visionary imbued with the zeal to invigorate the socio-cultural and political environment with new initiatives and ideas, Jawaharlal Nehru felt that it would be impossible to nurture and sustain the process of India's multi-faceted development without education or books. As an author who had popularised ideas on a wide range of subjects through his works, brought out by foreign publishers, Jawaharlal knew the limitations of Indian publishers. That is why, he established the National Book Trust, India, in 1957, to produce and to encourage the production of good literature and to make such literature available at moderate prices to the public.

That the National Book Trust, India, would not be a mere publishing house but would play an interventionist role with reference to publishing, distribution as well as the nurturing of the tastes of readers of all the Indian languages was made clear by laying down that it would, *inter-alia* : undertake the publication of outstanding works of Indian authors in Indian languages and their translation from one Indian language to anthor, take up the translation of outstanding foreign books, bring out books for the popularisation of modern knowledge; and, in addition, take steps to create a broad-based awareness and interest in diversified reading and publishing throughout the country.

Undoubtedly, quantitatively and qualitatively, the performance of the N.B.T. leaves much to be desired. This does not mean that the Trust has been either wholly inactive or entirely oblivious of its multifarious responsibilities. It has so far produced more than 2700 titles which are reasonably priced and cover a wide variety of topics, in English and in 12 Indian languages.

The Trust can justifiably lay claim to having promoted the publication of over 800 university level technical textbooks by Indian authors on a variety of subjects through a unique scheme which, despite its many operational bottlenecks, has given its authors a level of financial returns quite unusual in the annals of Indian publishing. It has also done a great deal in the field of childrens' literature. Under the Nehru Bal Pustakalaya Series launched in 1969 to promote national integration and foster a sense of unity and

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**Chairman, National, Book Trust, India* oneness by providing common reading material in regional languages, to children all over India, the N.B.T. has brought out over a hundred titles on history, folktales and festivals, the freedom movement, science and technology, life and works of outstanding Indians, excerpts from the works of great Indian writers and lately, some books for pre-school children, aimed at creating awareness of books as enjoyable objects of exploration and possession.

Other areas in which the N.B.T. has made a unique contribution are : the publication of popular books about the land and the people of India, National Biographies, Popular Science and, of course, Aadan Pradan, a unique series meant to provide translation of notable titles of one language in as many other Indian languages as possible.

Anyone familiar with the publishing scene will admit that the N.B.T. has been venturing in areas in which there is a void. He will, however, also complain that, through its own publishing programme, the Trust has not had the desired impact across the country. Moreover, it has failed to act as a catalyst of Indian publishing largely because it has shied away from taking risks on a scale commensurate with the size of the undertaking. It cannot be denied that many of its activities, whether in the field of publishing or for promotion of publication and the book-reading habit are being carried on below the minimum threshold required for registering an appreciable impact in a country of India's variety and dimensions.

Perhaps, for the first time, the N.B.T. India, is assuming, during the 8th New Delhi World Book Fair, its true role of a catalytic agent of Indian publishing. In addition to providing facilities for the display of foreign and Indian books, the Trust has invited a large number of authors, voluntary agencies, language associations, State academies, educational planners, etc. to interact informally with each other and to participate in two Seminars and two Workshops being organised to discuss (a) "Publishing in the Electronic Age with Special Reference to Developing Countries"; (b) "Need and Availability of Textbooks for the Higher education Sector in India"; (c) "Production, Publication, Distribution and Marketing of Reading Materials for Continuing Education of Neo-literates and School Drop-outs"; and (d) "Developing Curricular Strategy for Talented Children". Even more important than the planning of these Seminars and Workshops is the fact that all these activities are being undertaken with the co-sponsorship of almost all the major agencies—the U.G.C., the I.C.A.R., the A.I.C.T.E., the Council of Medical Education and the Ministry of Human Resource Development—concerned with the world of education, publishing and readership.

It is difficult to predict the outcome of either the 8th New Delhi World Book Fair or the Seminars and Workshops being organised under its auspices. One thing, however, is clear. By the very process of its involvement with the implications of the New Education Policy for the production, publication and distribution of books of various genre required to meet the needs of different economic, linguistic and educational groups, the National Book Trust will inevitably undergo a change of character. Having identified the hiatus between needs and availability of various types of books, it will be forced not only to assume some new tasks but also accept the responsibility for evolving mechanisms to assist the publishing industry to accept the challenges and opportunities inherent in an educational renaissance in India. □

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Birth of the Book Fair in India

K. S. Duggal*

A book fair is not just an exhibition of books, big or small. It is a commercial event organized with a view to providing an opportunity to publishers and distributors to negotiate copyright arrangements in respect of translation, reprint, bulk purchase, etc., of books. It has a fixed periodicity and as far as possible is held at the same venue. It is accompanied by other events like bookweek, seminars, symposia, workshops aimed at promoting writing, translation, designing, publishing and distribution of books. It may also have some entertainment features in the form of cultural and other programmes. Retail sale of individual copies to visitors has a low-priority in a book fair. In fact, it is not permitted in some of the international book fairs like the one at Frankfurt.

I have taken pains to say all this because writing on the subject some time ago when I stated that the first ever book fair was held in 1966 at Cross Maidan, Bombay, someone challenged it referring to an All India exhibition of books, held in New Delhi earlier in 1964 as its precursor. An exhibition which is, at best, an exposition of books has to be distinguished from a book fair.

The Book Fair is, perhaps, the most important annual event of the publishing community in India. The credit for conceiving the idea must go to Dr. B. V. Keskar, Chairman, National Book Trust, India, for over a decade. Dr. Keskar, a man of vision and wisdom, was an inveterate idealist. His contribution to broadcasting in India remains unmatched (though regrettably not quite adequately appreciated so far). The stewardship he provided to the Book Trust is an abiding tribute to his love for books and his anxiety to foster bookmindedness in the country.

Dr. B. V. Keskar believed that more than publishing books the National Book Trust should devote its resources to making people read and purchase more and more books. This is what Jawaharlal Nehru dreamt of when he set up the National Book Trust. He wished to make people book minded and thereby foster a scientific temper in the teeming millions of India.

As Chairman, National Book Trust, Dr. Keskar visited the Frankfurt Book Fair. He was then invited by the British Council to visit the UK when he had an opportunity to discuss with his counterpart in England how best an organisation like the Book Trust could serve the community. The message he brought was that the Trust should devote itself more and more to promotional activity and less and less to publishing. The Trust must try and fill the publishing gaps. It should, as far as possible, supplement publishing in the private sector in India.

This gave birth to the concept of the book fair as an instrument of exposing people to reading materials. It was from this that the idea of regional exhibitions sprouted. It was from here that the Trust stepped on to organising a World Book Fair in 1972. Visiting the World Book Fair held in New Delhi, Dr. S. Taubert, the then Director of Frankfurt Book Fair, observed, 'It is to be seen to be believed !' It is maintained that it was the most glorious moment in NBT's history. The Prime Minister of the day who had earlier regretted her inability to find time to inaugurate the Fair sent word and visited the Fair, spending the entire evening going round the stalls.

However, when the crowds thronged the Fair Premises in Windsor Place in the Capital and the national press was agog with its praise, as Director of the Fair, I was reminded of 1966 when hardly a few months after my taking over the Trust, I was entrusted with the responsibility of organising the First National Book Fair. The Chairman of the Book Trust, Dr. B. V. Keskar, was away in the UK when the proposal was put up to the Trust's governing council for financial sanction. I vividly remember the morning. In Dr. Keskar's absence, Shri Bhagwati Charan Verma, the seniormost member of the Trust, was in the chair. The late Mr. P. S. Jaysinghe of Asia Publishing House and the late Shri Romesh Thapar who a few years later headed the National Book Development Board tore the proposal to pieces. Mr. Jaysinghe, the most leading publisher in the country, who had been participating in the Frankfurt Book Fair year after year, said that the concept of the book fair was essentially alien to Indian publishing. It would never succeed. 'And how could you display a fragile thing like a book in an improvised stall or exhibit it in a temporary pavilion erected for the purpose ?' he

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asked me again & again. Shri Romesh Thapar seemed to agree with Mr. Jaysinghe entirely. It hurt me deeply because I looked upon Shri Thapar as a progressive and a man of independent thinking. But it seemed he had been completely won over by Mr. Jaysinghe. After a long debate, it was felt that since the Trust Secretariat had already made commitments in consultation with the Executive Committee, we might try out the idea on an experimental basis. But I was told in no uncertain terms that if the fair was a flop, I should be prepared to face the consequences. Dr. Keskar being away, the responsibility was entirely mine.

I accepted the challenge. Something in me said that they were being unnecessarily sceptical.

The Fair was held on a 90,000 sq. ft. plot requisitioned at the Cross Maidan, Churchgate, Bombay for the purpose. The exhibition pavilion covered an area of 10,000 sq. ft. and the rest was earmarked for stalls, auditorium, office and lounge, etc. One hundred and fifty stalls, each 8 by 8 ft., were erected and rented to the trade.

The main attraction of the Fair was the exhibition of 8,000 selected books in various Indian languages, including English, published in India since January, 1964. There were about 2,400 books in Hindi, 2,000 in English, 735 in Marathi, 535 in Gujarati, 410 in Bengali and 1780 in other Indian languages such as Telugu, Tamil, Malayalam, Kannada, Assamese, Urdu and Punjabi.

An exclusive section of the pavilion, which turned out to be one of the most popular, displayed an array of choicest children's books.

The stalls were rented out to both Indian and foreign publishers or their agents, diplomatic missions and other agencies related to the book trade. Books could both be displayed and sold in the stalls. They were decorated tastefully and did brisk business.

The Fair was inaugurated on the 5th November, 1966, by Shri Nityanand Kanungo, the Governor of Gujarat, in a tastefully decorated auditorium. Addressing a distinguished and representative gathering, Dr. B. V. Keskar, in his welcome speech, explained the significance of the National Book Fair and described the Fair as the first ever biggest effort made for the promotion of books and publishing in South Asia.

The Book Fair also provided an appropriate setting for conventions of publishers and booksellers which were held under the auspices of the Federation of Publishers & Booksellers Associations in India. Dr. Rafiq Zakaria, Maharashtra Minister for Urban Development, presiding over the inaugural meeting, expressed his conviction that Indian publishing had a bright future. He said that people's hunger for more reading material was on the increase as was evident from the large crowds that the Book Fair was attracting. Important problems relating to book distribution were discussed freely and frankly. The Akhil Bharatiya Hindi Prakashak Sangh also held its Convention on the premises of the Fair. Shri Amrit Lal Nagar, the renowned novelist, presided. On this occasion, an exhibition of about one hundred and fifty manuscripts of outstanding Hindi authors was arranged by the Kashi Nagari Pracharini Sabha. Inaugurating the exhibition of manuscripts, Shri Mahavir Adhikari, the then Editor of "Nav Bharat Times", urged the publishers to give a better deal to writers.

There were, in all, eleven literary and cultural programmes held in the Fair auditorium during the Book Fair each evening being devoted to one Indian language.

The series of cultural programmes was inaugurated by Shri Ramdhari Singh "Dinkar," the noted Hindi poet.

On the concluding day of the Fair, i.e. 20th November, awards were given to the two most outstanding stalls. The awards were given away by Shri Raj Bahadur, Minister for Information and Broadcasting, Government of India.

A Book Week was observed during the Book Fair from 8th November to 14th November throughout the country. Publishers and booksellers displayed book week posters produced by the Trust and allowed a special discount on books purchased during the Week. As many as six trade journals brought out special supplements. The entire network of All India Radio put across a large number of broadcasts relating to the Week and important newspapers like the Hindu (Madras), The Times of India, The Indian Express and the Blitz carried special articles aimed at fostering bookmindedness. All India Radio and the Publishers' Association celebrated the Book Week with conventions, seminars and exhibitions in almost all the important town of Northern India like Allahabad, Varanasi, Lucknow, Jaipur, Udaipur, Jodhpur and Patna. In Varanasi essay competitions were held in educational institutions and prizes given to those who had drawn the largest number of books from the libraries of their respective institutions during the year. The National Book Trust distributed several thousand posters in English and Hindi highlighting the importance of the Book Week.

Several publications were brought out by the Trust and other organisations in connection with the National Book Fair. The Trust published a catalogue of books exhibited together with a book-mark which was distributed free to visitors to the Fair. The Federation of Publishers and Booksellers Associations in India published a handsome volume by way of a souvenir which contained a number of useful articles on the various aspects of the book trade in India and a review of publishing activity in various Indian languages. The Akhil Bharatiya Hindi Prakashak Sangh brought out a pamphlet in Hindi advising their constituents about the way the Book Week was to be celebrated.

By all accounts, the Fair was a remarkable success. It went a long way in fostering bookmindedness in the country. The press, the book trade and the book lovers all hailed the idea of the National Book Trust organising a fair like this and expressed the hope that it would become an annual feature of the activities of the Trust. The Trust received an invitation from the Publishers and Booksellers Association of West Bengal inviting it to hold the next Fair in Calcutta.

This is how the National Book Fair became a regular feature of the Trust activity. Fairs were held at Delhi, Calcutta and Madras culminating in the World Book Fair in 1972 declared by UNESCO as the Book Year.

It was proposed to hold the World Book Fair at the Feroz Shah Kotla Grounds, New Delhi. But owing to Emergency on account of the war with Pakistan, the Fair had to be postponed. Soon after the war was over, it was decided to reschedule the Fair to be inaugurated on March 18. Since the original site at the Feroz Shah Kotla Grounds was not available during the months of March-April, 1972, the Fair had to be moved to Windsor Place, a site smaller in area, but perhaps an improvement on the previous site since it was more centrally located.

Because of the new site and changed dates almost every detail of the project had to be planned afresh. Work started on 15th February 1972, leaving the contractors barely five weeks to execute 4,592 sq.m. of covered space and another 2,198 sq.m. for a large number of participants to build their pavilions.

The assignment was that a pavilion of 2,809 sq.m. in area with a number of ancillary buildings of a type that would provide an intellectual environment had to be put up all in temporary construction when the President of India would inaugurate the Fair on March 18th, 1972, in the presence of an international gathering.

Apart from the main pavilion, a number of well-known publishing houses undertook to construct their own pavilions for which well-demarcated open plots were allotted. They provided an attractive synthesis with the main pavilion and as the scale and grandeur of the main pavilion kept on unfolding, the private pavilions did not lag behind to impart the best artistic touches to their final finish. The interior designing of those pavilions was also tastefully done and attractive styles of book-displays were seen in the pavilions. In perspective, an effect of total elegance was achieved in the architectural style of the entire Fair, and even when the construction was temporary, it projected an image of a rich performance. The facade of the Fair revealed itself in all its simple but striking elegance on the Janpath side, while the ancillary pavilions could be seen stretching towards Ashok Road, each in its unique architectural style and finish.

The Fair was inaugurated by Shri V. V. Giri, President of India, on 18th March at 5.30 p.m. at an impressive function attended by more than 3,000 guests including Prof. S. Nurul Hasan, Minister of Education and Social Welfare, Members of Parliament, diplomats, foreign delegates, authors, publishers and book lovers.

Since 1972 was also being celebrated as the twety-fifth year of India's Independence, one of the highlights of the Fair was an exhibition of outstanding books published in the various Indian languages and in English since India became independent. In this Exhibition nearly 10,000 books in Hindi, English, Bengali, Gujarati, Kannada, Marathi, Tamil, Telugu, Punjabi, Malayalam, Urdu, Assamese, Oriya, Sindhi and Sanskrit were displayed. There were special sections for children's books and paperbacks.

In the International Sector of the Book Exhibition, books on India published in some of the friendly countries were displayed along with a few publications marked for their excellence in printing and production. A large number of foreign countries sent some of their outstanding books for display in this sector. These included the UK, the USSR, the USA, France, the GDR, the Federal Republic of Germany, Switzerland, New Zealand, Hungary, Italy, Greece, Iran, Czechoslovakia, Spain, Sri Lanka, Cambodia, Malaysia, the Democratic People's Republic of Korea, Turkey, Afghanistan, Kenya, Tanzania and Zambia.

Provision was made for publishers both in the public and private sectors to rent stalls or set up their own pavilions where they displayed as well as sold their books. Publishers representing several foreign countries including those from the UK, the USSR, the USA, France, the Federal Republic of Germany, the German Democratic Republic, Ireland, Japan, Hungary, Yugoslavia, Czechoslovakia, the Democratic People's Republic of Korea, Iran and Bangladesh participated. WHO and the Publication Bureau of UNESCO (Paris) also joined. A number of foreign publishers came to the Fair to man their stalls.

Over a hundred Indian publishers rented stalls or put up their own pavilions where they exhibited and sold their publications. Provision was also made for economic stands for members of the Federation of Publishers and Booksellers Associations in India. A number of State Governments (Punjab, Madhya Pradesh, U.P., Andhra Pradesh, Tamil Nadu, Kerala, Maharashtra, Orissa, West Bengal and Assam) participated in the Fair. Also several public sector organisations (the publications Division of the Ministry of Information and Broadcasting the Publications Branch, Government of India, the Council of Scientific and Industrial Research, the Indian Standards Institution, the Indian Science Academy and the Indian Council of Agricultural Research and others) joined in a big way. The various organisations under the Ministry of Education and Social Welfare were housed under one roof in an exclusive pavilion.

During the last three days, a Book Bazar was organised on the precincts of the Fair where books were sold by publishers at reduced rates. It was a tremendous success and attracted large crowds.

Shri G.S. Pathak, Vice-President of India, gave away awards to the best designed stalls and the best produced jackets in a function held in the Imperial Hotel.

While finalising the programme of the World Book Fair, it was decided to organise an International Seminar on 'Books for the Millions' during the Fair. The Seminar was aimed at presenting a wide spectrum of opinions and information on the production of paperbacks and related problems. The papers and discussions were to set in perspective their importance in spreading knowledge and providing entertainment to readers. The participants of the Seminar drawn both from the developed and the underdeveloped countries were invited to examine the subject from the point of view of its origin and history, copyright problems, sales and how they affected authors etc. They were also to study the implications of paperback production for developed countries which produced large numbers of them, and for developing countries which were keen on producing their own inexpensive books.

A standing committee was nominated to look after the organisation of the Seminar. The committee decided upon the following eight sessions spread over three days :

1. Paperbacks—a Historical Survey.
2. Paperbacks and Copyright Problems.
3. Paperbacks and the Author.
4. Production of Paperbacks.
5. Distribution of Paperbacks.
6. Paperbacks in Developing Countries.
7. Paperbacks and Hardbounds.
8. Cooperative Publishing.

Shri Dina Nath Malhotra, Managing Director, Hind Pocket Books (P) Limited, was nominated Technical Director of the Seminar. The Seminar was formally inaugurated by Dr. Prem Kripal, the then Chairman, Executive Board of UNESCO.

A National Writers' Camp was held during the World Book Fair from March 26 to 31, 1972. The Camp was inaugurated by Shri Y.B. Chavan, Union Minister of Finance. In this 93 eminent writers in various Indian languages and in English participated.

With a view to giving to readers an opportunity to meet their favourite authors, Meet the Authors' sessions were held in which writers spoke about their art and philosophy, followed by discussions between the authors and the audience.

Synchronising with the World Book Fair a Book Week was celebrated throughout the country from March 18 to 24. An extensive publicity campaign was launched to foster bookmindedness during this period. Universities and other educational institutions, libraries and cultural organisations celebrated the Book Week appropriately to create an atmosphere in which people purchased and read more books. The Federation of

Publishers and Booksellers Associations in India allowed a special discount of 10% on books purchased during this period. AIR network organised special broadcasts and the P & T Department cancelled postal articles from the principal cities with a slogan of the Week in English and Hindi. The Trust brought out an attractive poster with the Slogan of the Week and distributed it to the educational and cultural institutions in the country for display.

A series of cultural programmes was organised in ballroom of Hotel Imperial for foreign and Indian guests participating in the Fair. The programmes started on March 19, 1972 with a shehnai recital by Ustad Bismillah Khan and party. Vedantam Satyanarayana and party gave a Kuchipudi dance recital on the 20th. Ustad Amjad Ali Khan presented a recital on the sarod on the 21st. Pt. Sampta Prasad accompanied him on the tabla. On March 22 Km. Padma Subramaniam of Madras presented a dance recital. Children of some foreign countries along with Indian children presented a variety programme on the 23rd observed as the International Children's Evening. All India Radio's National Orchestra gave a programme of orchestral music on the 24th. On the 25th Dr. Lakshmi Narayan Lal's Hindi play Suryamukh was produced by Prof. E. Alkazi. April 1 featured an interesting Mushaira, Kavi Durbar and Kavi Sammelan with leading poets in Hindi, Urdu and Punjabi participating in it. The cultural programmes were a remarkable success.

An All India Publishers Convention was organised by the Federation of Publishers and Booksellers Associations in India on March 23, 1972. The Convention was inaugurated by Shri Kanti Chaudhuri, Joint Secretary, Ministry of Education and Social Welfare, Government of India, and was attended, besides publishers and booksellers in the private sector, by representatives of publishing organisations in the public sector, librarians and others interested in books. There was a lively discussion on 'The Public and the Private Sector in Publishing.

The Federation of Publishers and Booksellers Associations in India organised two training courses, one for 'Publishing Management' and the other for 'Book Promotion and Distribution'. The courses were directed by Shri O. P. Ghai, President and Shri M.N. Rao, Past President of the Federation, respectively.

The Indian Library Association had the privilege of having President V.V. Giri to inaugurate the 19th All-India Library Conference on March 24, 1972 on the premises of the Fair.

The Indian National Science Academy organised a discussion on 'Production of Books on Science' on March 31, 1972. Prof. B.R. Seshachar, President of the Indian National Science Academy, and about 50 delegates participated in the discussions. The Akhil Bharatiya Hindi Prakashak Sangh organised a seminar on 'Popularising Hindi Books Abroad' on April 1. The Seminar was inaugurated by Shri D.P. Yadav, Deputy Minister of Education and Social Welfare, under the chairmanship of Dr. B.V. Keskar, Chairman, National Book Trust, India.

The Sangh also held a symposium on 'Paper Scarcity in India', which was inaugurated by Shri Siddeshwar Prasad, Deputy Minister of Industrial Development.

The Association of Master Printers organised an All India Convention of Printers under the chairmanship of Shri Guha Ray, to discuss problems of mutual interest.

A symposium on 'Communication Across Frontiers' was held on March 21. The participants in the symposium were : Dr Satish K. Arora, Fellow of the Indian Council of Social Science Research, Prof. M.L. Sondhi, Associate Professor in the School of International Studies, Jawaharlal Nehru University, Shri Satish Saberwal, Fellow, Indian Institute of Advanced Study, Simla, Shri L. Shivalingappa, Research Scholar, Jawaharlal Nehru University, Smt. Amita Malik, eminent journalist and Shri Ashok Davar, a journalist from the USA. Shri Ashok Mitra, Secretary, Planning Commission, acted as the Chairman of the Seminar.

The following countries participated in the Fair in one capacity or another: Afghanistan, Bangladesh, Sri Lanka, Czechoslovakia, Cambodia, France, the Federal Republic of Germany, Greece, the German Democratic Republic, Hungary, Italy, Ireland, Iran, Japan, Kenya, Mauritius, Malaysia, Nepal, New Zealand, North Korea, Poland, Switzerland, Spain, Tanzania, Turkey, the USSR, the UK, the USA, Yugoslavia and Zambia.

An extensive and well coordinated publicity campaign was launched months before the commencement of the Fair. Ten thousand copies of attractively designed World Book Fair posters were distributed to all important educational and cultural institutions in New Delhi and principal towns all over the country. Hoardings were installed at strategic points and cinema slides released in the leading cinema houses in the city. Over a hundred buses in Delhi and New Delhi carried the World Book Fair advertisement from March 1 till the

Fair was over. Nearly 10,000 beautifully designed car-stickers were distributed in Delhi, Bombay, Madras and Calcutta.

The Posts and Telegraph Department cancelled postal articles with the inscription World Book Fair and the slogan "A Good Book is a Good Friend" during the Fair in 23 important cities.

The Radio network and TV provided extensive coverage to the Fair activities by broadcasting a variety of programmes before and during the Fair. The commercial services of All India Radio carried the Fair advertisement for about three weeks at peak listening hours. The Films Division gave appropriate coverage to the inauguration of the Fair by President V.V. Giri and other important functions in the newsreels.

The press noticed the activities of the Fair liberally. The following newspapers and journals brought out special supplements on the occasion: The Statesman, The Times of India, The Indian Express, The Patriot, The National Herald, The Motherland, The Amrita Bazar Patrika, The Aaj, The Illustrated Weekly of India, The Economic Times, The Contemporary Indian Literature, The Educational Reporter, The Surge, The Point of View, The Dinman, The Thought, The Prakashan Samachar, The Natrang, The Pustak Parichay, The Sanchetna, The Entertainer, The Tarun Bharati, The Consumer Gazette, The Nilachar, The Indian Book Industry, The Round Table, The Mainstream, The Socialist India, The Link and The States.

Due to an unprecedented response from visitors, the Fair was extended by two days upto 4th April. Nearly 2,00,000 visitors visited the Fair. Among them were the President, the Vice-President, the Prime Minister, Union Cabinet Ministers, the Maharani of Sikkim, State Governors and Ministers, Diplomats, foreign delegates, authors, publishers, librarians, teachers, students and others.

The number of books displayed in the Fair was 2,00,000 of which 10,000 books in all the Indian Languages and English were displayed in the National Exhibition. A number of foreign delegations participated in the Fair.

(1) Delegates from USSR
(2) Delegates from GDR
(3) Delegates from East African Countries
(4) Delegates under UNESCO Grants

UNESCO placed two grants of $2000 and $5000 at the disposal of the Trust. The grant of $2000 was made at the Trust's suggestion to enable them invite Dr Sigfred Taubert, Director, Frankfurt Book Fair, and the other grant of $5000 was for the purpose of inviting publishers from some other countries to visit the Fair.

The birthpangs of the Book Fair were agonising but it turned out to be a bonnie baby. It has since grown into a fine institution which is the pride of India's publishing community. The Trust continues to organise a World Book Fair every alternate year. The National Book Fair is an annual event. The year in which the World Book Fair is held, the National Book Fair is merged in it.

The uncertainty and the unseemly controversy that preceded the Eighth World Book Fair is nothing new. Almost every fair held is menaced with one controversy or the other. The publishing community in India being split in splinter groups, it falls to the lot of the National Book Trust to carry them all together tactfully and provide them a common forum. More than anything it is an important contribution of the book fair to the world of books in India. □

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BOOK DEVELOPMENT IN INDIA

J.C. Sharma*

Introduction

Indian publishing has shown steep progress since the independence of the country. India is among the 8 largest book producing countries of the world and publishes books in English as well as various Indian languages in a variety of subjects. It is creditable on the part of Indian publishing industry that it ranks 3rd after USA and UK in the production of English titles.

Prior to our independence, publishing in India was limited in its scope and was controlled by a few publishing concerns many of whom were subsidiaries of multinational publishing houses. These publishers were mostly concerned with educational books. As educational system was based on the British model, there was hardly any scope for local book industry to grow. Book publishing thus grew alongwith national conscience after attaining independence. After independence, there was a tremendous expansion of education as well as educational institutions. With the growth of education the need for more books also grew. Indian publishing industry (both private and public sector) rose to the occasion to meet the growing need for books.

School Textbooks

Almost all the books used for school education are indigenous. With a view to provide good and economic books to school children, almost all the State Governments have nationalised textbooks and have set up Textbook Boards. The National Council of Educational Research and Training (NCERT) helps State Governments in getting the books assessed to constantly improve their quality. NCERT is also producing textbooks specifically for schools affiliated to the Central Board of Secondary Education. The State Governments may also adopt these textbooks. The prices of these textbooks are intended only to cover the actual expenditure incurred on material, printing, overheads etc. Besides, NCERT also brings out supplementary reading material in different areas such as India's cultural and literary heritage, development in science etc. However, school textbooks produced by the public sector are not adequate to meet the national requirements. It is estimated that out of 13,000 books in the use, all over india, only 1000 are nationalised books. In order to fill up this gap, educational institutions have to depend upon textbooks prepared by private publishers.

It has been stated in the report on 'National Book Policy' brought out by the National Book Development Council that it is educationally unsound to prescribe a single textbook for all students in a class. It has been recommended that a single textbook situation need to be remedied with the production of more than one textbook in each subject in regional languages so that students and teachers have a choice from available books. Near absence of educational literature for technological education in regional languages for secondary and higher secondary level need be remedied. The agencies, expertise and resources of private sector may be fully availed of in the production and distribution of such literature.

University Level Books

University level books have been mostly with the private publishers and original university level textbooks are being produced suited to the needs of our students. These textbooks are quite popular in many developing countries as they are more readable for them. The Govt. have sponsored the following schemes for making textbooks for university level courses available at reasonable prices :

I. University Level Books from Abroad

In cooperation with the Govts of UK, USA and USSR schemes have been initiated to make available to Indian university students standard books at low prices. The books supplied are those approved by Government. Books from UK and USSR are reproduced in those countries and marketed in India through commercial channels. The approved USA books are published in India with a USIS or USAID Subsidy from PL-480 Rupee holdings in India. The freedom of universities to use or not to use these books is left unhampered. Under these programmes, about 1620 American, 720 British and 550 Soviet books have been published so far. Latest editions of books are considered for coverage under these programmes and are assessed by expert agencies with regard to their suitability for Indian

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students and non-availability of comparable books by Indian authors.

II. Indigenous University Level Books

(a) Scheme to Subsidise University Level Books and Reference Books.

The National Book Trust (NBT) has been implementing a scheme to subsidise university books and reference books since 1970. The main objective of the scheme is to encourage indigenous authorship and to make available to students books of acceptable standard at reasonable prices. The scheme neutralises the impact of low cost editions by foreign authors either being reprinted within the country or imported into the country in large numbers. As a result of this scheme the country's dependence on imported books is gradually reducing. This scheme provides finances in the form of subsidy to the publishers and royalties to the authors. The books published under the scheme are generally published and marketed by private sector publishers.

To start with the scheme was to subsidise university level books in English. In July 1982 the scope of the scheme was extended to cover books in Hindi and effective April 1984 the scope of the scheme was further extended to regional languages. So far about 750 books have been subsidised and 950 authors and 250 publishers have been benefitted by the scheme.

(b) Book Promotion in Hindi and Regional Languages

Ministry of Education in cooperation with the State Govts. launched in 1968 a massive programme to produce suitable standard books in Hindi and regional languages. The scheme envisaged to facilitate the change over from English to Indian languages as the medium of instruction at the university level. Under this scheme in the field of textbooks, priority is given to original writings. Textbooks written under the programme are to be directly linked with the syllabii content of prescribed courses. Translations/ adaptation of the best books of the world are also encouraged. This scheme is implemented through Book Production Boards/Hindi Granth Akademies set up by the State Governments. Uptil 31st January 86 a grant of Rs. 14 crores has been released in favour of the State Govts. and Akademies. 7258 books in various Indian languages have been produced.

(c) Core Books Project in the Medical Sciences

In India we still have paucity of books on Medical Sciences by indigenous authors. The imported books are beyond the purchasing capacity of the Indian students. Keeping this in view the Govt. of India envisaged the scheme for preparation of books in medical sciences by eminent subject specialists. The project was entrusted to the NBT in 1970. Under this scheme the authors are commissioned to write books and they are paid preparation charges in advance. In addition, the authors of the core books project are also entitled to get the usual royalty as applicable in the subsidy scheme. So far about 23 books have been published under this scheme.

(d) UGC Programme for Preparation of University Level Books by Indian Authors.

The University Grants Commission (UGC) initiated a scheme in 1970-71 of providing financial assistance to outstanding scholars in the universities, colleges and other institutions of higher learning in the country for the preparation of high quality books and reference materials for use in the universities and colleges. Under the scheme, assistance is given to the authors for the preparation of manuscripts. The authors are paid preparation charges and books are published by the authors themselves. Earlier, such works selected by the UGC use to be subsidised by NBT. According to the available information upto March 1985, 840 projects were accepted and 242 manuscripts have been completed and 511 projects are in different stages of implementation.

(e) Hindi & Other Languages Publications

The Language Division of the Deptt. of Education is also implementing a scheme to provide financial assistance to Voluntary Hindi Organisations for promotion of Hindi. This scheme inter alia provides for assistance for preparation and publication of Hindi manuscripts, assistance for publication and translation into Hindi of books in regional languages, assistance for publication of books written in Devanagari script, setting up and running libraries in Hindi books etc.

Besides, there is a scheme to produce standard literature in Sindhi including printing of books. Under this scheme about 20 books have been published.

For the promotion of Urdu, Deptt. of Education has established Tarqui Urdu Boards which bring out academic literature of Urdu for the benefit of students. The Bureau also compiles technical terms, encyclopedias, dictionaries, etc. in Urdu. This Bureau has published 450 books of various subjects.

There are also other institutes as Central Institute of Languages, Mysore, Central Institute of Hindi, Central Hindi Directorate which are engaged in research in the field of languages and linguistics in India. These institutions have also substantive publication programmes.

Government also provides financial assistance to organisations for production of Sanskrit literature. Assistance is given for printing and publication of original works relating to Sanskrit Literature, printing of out of print Sanskrit books, Sanskrit journals and to improve their quality etc.

(f) Besides, there are a number of Research Institutes and specialised agencies such as IITs, Indian Institute of Science, Council of Scientific and Industrial Research, Indian Council of Agricultural Research, Indian Council of Medical Research, Archaeological Survey of India, Anthropological Survey of India, Indian Council of Historical Research, Indian Council of Philosophical Research, Indian Council of Social Science Research etc., that bring out usual monographs, books in the specialised areas of science, technology, agriculture, medical science, history, philosophy, sociology etc.

General Books

In addition to the private publishers various Government and Government sponsored agencies like National Akademies, Institute of Advanced Study, Simla, Archaeological Survey of India, Indian Council for Cultural Relations, Publications Division of Ministry of I & B, etc. are engaged in the production of general books needed for mental pleasure and general awareness.

The Publications Division of the Ministry of I & B is one of the largest publishing and book selling enterprises. It publishes books and journals in all major Indian languages. Its publications cover a wide-range of subjects including art, culture, history, tradition, political evolution, economic development and social research.

The Publications Division have 7 major series like Collective Works of Mahatma Gandhi, Peoples of Modern India, States of Our Union etc. and Reference Publications like India—A Reference Annual. Besides, the Division also brings out 21 journals of varying periodicity like Yojna, Bal Bharti, Kurukshetra, Bhagirath in English and Hindi. The Division has brought out more than 16,000 titles so far.

The National Book Trust, India was set up in 1957 as an autonomous organisation under the Ministry of Human Resource Development, Department of Education, Government of India, with the objectives of producing and increasing the production of good literature at a low price and to foster bookmindedness. The Trust publishes books under well defined series such as India—the Land and the People, National Biography, Young India Library, Folk Lore of India, Popular Science, Adan Pradan etc. It publishes books in English and modern Indian languages and have brought out over 3,000 titles.

Sahitya Akademi was established in 1954 as an autonomous organisation by the government of India to work actively for the development of Indian literature and to set high literary standards to foster literary activities in all the Indian languages and to promote through them cultural unity of the country. The Akademi brings out a number of books every year besides a bi-monthly journal in English, 'Indian literature', a quarterly 'Samakalin Bhartiya Sahitya' in Hindi, and a half yearly 'Sanskrit Pratibha' in Sanskrit. The Akademi has sponsored two series of publications namely Histories of Literature of various Indian languages and Makers of Indian Literature.

Children's Books

Books are tools for development. Development of of a nation is in the development of its children. A country like India which has multiplicity of languages and ethnic groups need books for children in various languages to cater to their diversified needs. Authors, publishers and illustrators have to work jointly to stimulate young minds with a view to foster national integration, emotional maturity, reading habit among them. There is a need to have more and more children literature with colourful illustration.

The National Books Trust, India and Children Book Trust have brought out good literature for children. The NBT brings out books with uniform content at a uniform price under the series Nehru Bal Pustakalaya. So far 1168 titles and translations have been published under this series. The Children Book Trust is a private organisation devoted exclusively to children's literature. The Trust has been helped to set up its own press. They have so far published 430 titles out of which 200 are original titles in English and others are translations in other Indian languages.

There are not many private publishers who bring out books for children as they cannot afford to compete with the foreign publishers and public sector publishers. It is the need of the time that more books depicting Indian Culture and Progress in the field of science are brought out in simple language for the children to help future society equipped with knowledge and awareness.

Library Movement in India

Since there was a need to increase the number of libraries in the country, Government of India established Raja Ram Mohan Roy Library Foundation in 1972 on the occasion of bi-centenary of the birth of Raja Ram Mohan Roy, International Book Year and the celebration of Silver Jubilee of India's independence. The foundation was set up with an objective to take the library movement to small towns and villages in cooperation with State Governments, Union Territory Administrations and other organisations working in the field with a view to providing reading facilities for all sections of population.

Libraries especially public libraries in India come under the jurisdiction of State Governments. State Governments and voluntary organisations have taken the initiative for developing library services. Voluntary organisations also get grants from the Government and Raja Ram Mohan Roy Library Foundation supports the State efforts by rendering assistance on matching basis under certain schemes such as :

1. Assistance towards building up of adequate stock of books
2. Assistance towards organisation of mobile libraries and rural book deposit centres
3. Assistance towards storage of books
4. Assistance towards seminars, workshops, book exhibitions etc.
5. Assistance to libraries below district level for increasing accommodation
6. Assistance to State Central Libraries and District Libraries to acquire TV cum VCR set and cassettes for educational purposes.

There is a provision of Rs. 442 lakhs in 7th Five Year Plan under the schemes of Central Assistance to States and UTs. Besides, there is a scheme of Assistance to Voluntary Educational Organisations working in the field of public libraries. A provision of Rs. 200 lakhs have been made in the 7th Five Year Plan for this purpose.

There is a scheme of Direct Assistance for :

1. State Central Libraries and District Libraries through Central Selection of Books.
2. Assistance to Centrally sponsored libraries : (a) Nehru Yuvak Kendras (b) Jawahar Bal Bhavans (c) Other libraries recommended by the Central Government and/or approved by the Foundation.
3. Assistance to Children's Libraries and Children's Section of general public libraries.
4. Assistance towards collection and compilation of library statistics through official and non-official agencies. There is a provision of Rs. 159 lakhs in the 7th Five Year Plan for this purpose.

Achievements

District Libraries have been established in most of the districts. Some of the State Central Libraries and Regional Libraries also function as District Libraries for the respective districts in which they are located. State Central Libraries and Regional Libraries are usually Government libraries with a few exceptions such as Sinha Library, Bihar and Maulana Azad Central Library in Madhya Pradesh. For the last fourteen years the foundation has covered 18345 libraries at various levels i.e. State libraries (28), District libraries (387), Sub-division Taluq/Tehsil libraries (466), Nehru Yuvak Kendras (173), Bal Bhavans (49), Town and Rural libraries (16249), Mobile libraries/Rural Book Deposit Centres (879), NSS Centres and others (116).

Besides, all the Institutions have separate provision for the development of libraries. The University Grants Commission also extends grands for the development of University and College libraries. During the year 1985-86 UGC has released grants of Rs. 530 lakhs to the University libraries and Rs. 276 lakhs for the college libraries for the purchase of books and periodicals.

Imports and Exports

Imports : India is following a liberal import policy in respect of books and publications. The main objective of this import policy is to encourage free flow of knowledge and also to gain from the advancements in the scientific and technical fields made in other countries. It has been envisaged while putting a restriction of 1000 copies on each title per importer per year under the open general licence that it does not harm the indigenous publishing industry. Import of foreign editions of books for which Indian reprints are available is not permitted under the rules. Similarly the import of foreign reprints of Indian publications are not allowed.

Exports : India now exports books, including journals and periodicals, to over 80 countries. Beginning with a modest figure of Rs. 6 million in 1965-66, Indian exports had risen to Rs. 250 millions in 1984-85.

A remarkable feature is the wide variety of subjects on which India publishes books. It is gratifying to observe that the USA, UK and West European countries, Japan and Australia are good markets for books on Indian Philosophy, Religion, Yoga, Culture and

Ancient Classics, History, Current topics and Natural Sciences. Children's literature has a steady market in Singapore, Malaysia, Kenya, Nigeria, Fiji, West Indies and Mauritious.

Many factors have been responsible for the phenomenal ries in the export of Indian books over the years. An important aspect has been the systematic manner in which Indian publishers and distributors have been promoting the sale of books abroad. Their representatives travel extensively in various countries where they contact trade and institutional customers. This enables them to meet the existing demand and promote new books.

The Government of India has been very particular to encourage book exports. The Chemicals and Allied Products Export Promotion Council, popularly known as CAPEXIL, and set up a separate panel to deal with the export of books and publications. This panel helps Indian book exporters with their problems and facilitates their export activities by granting cash assistance at the rate of 8% for all types of books. Blanket Exchange permit is being issued to the exporters @ 10% of export earnings. Marketing Development Assistance is granted at the rate of 30% (60% for small publishers) for delegations, study teams etc., sponsored by the CAPEXIL. For export promotion activities such as market studies, publicity, participation in the fairs etc. subsidy @ 60% is given to the members of CAPEXIL.

The National Book Trust has been playing a significant role by helping Indian publishers and distributors to participate in various international book fairs. Regular and increasing Indian participation at the Frankfurt Book Fair and the other important international fairs at London, Cairo, Singapore, Moscow and in several other countries has been an important factor in projecting Indian books and building up their sales in overseas markets.

Copyright

It is very essential for the development of books that the country has a strong national Copyright Law. It is important in the sense that if the rights of the authors and publishers are not protected, there is every chance of their works being pirated. In this regard India stands on a very strong ground. The Copyright protection is governed by the Copyright Act, 1957. The Act provides that the author is the first owner of the copyright except where the work is produced under the contract of service or apprenticeship. Copyright owner according to our Act is empowered to adopt, translate or copy or allow the work for cinematography, record or broadcasting. General terms of the copyright is for author's life and 50 years after his death so that this way even his successors are given protection.

The Copyright Act has been amended in 1984 to check the wide spread piracy. It has incorporated stringent punishment for infringement of Copyright.

According to our Copyright Act authors enjoy special rights. Even after assigning their rights, the authors have a right to claim the authorship of the work and also right to restrain or claim damages for any distortion or mutilation of their work or any action taken on the work which would be prejudicial to their honour or reputation. The right relating to restraint or claim for damages or distortion or mutilation, etc. can be claimed even by the legal representatives of the author.

The Copyright Act provides that any act which is done by anybody else without the authorisation from the author which only the author has the right to do, is punishable offence. Even when there is any violation of the terms of assignment, it constitutes copyright infringement.

Since India is a member of the two International Copyright Conventions, works of Indian nationals get copyright protection in other countries which are members of these Conventions. Likewise, foreign works also enjoy Copyright protection in India as if authors of these works were Indians.

By virtue of 1984 Amendment of the Act, authors can come before the Copyright Board in their disputes with publishers for inexpensive summary disposal of their disputes. The Copyright Board can give permission to copyright owner to revoke his agreement if the terms of the assignment are harsh to him or if the publisher unduly delays the publication. The amended Act further provides that any assessment has to be definite in terms and should indicate clearly the rights proposed to be assessed and the size of the work.

Other Book Promotional Activities

(a) Book Fairs and Exhibitions

Besides participating in the International Book Fairs for the promotion of books abroad, a number of book fairs are organised within the country. These fairs and exhibitions are organised by the National Book Trust which is fully financed by the Government. The Trust so far has organised 7 World Book Fairs in New Delhi, 12 National Book Fairs in the major cities of the country, over 100 book exhibitions in district and university centres and 5 book festivals on a regional basis. Apart from these book fairs and book exhibitions, the Trust also celebrates a National Book Week. All these book fairs, exhibitions and National Book Week are organised in collaboration with the Trade Federations such as Federations of

Indian Publishers, Federations of Publishers and Booksellers Associations, and Authors Guild of India. All these are given wide publicity through Press Media, Posters and Banners.

(b) Book Exhibitions of University Level Textbooks

In order to publicise the indigenous publications, Raja Ram Mohan Roy National Education Resource Centre which is a part of the Book Promotion Division organises a number of exhibitions in the country at various universities and institutions of higher learning. In doing so, the Centre creates an awareness about the presence of indigenous standard books in various fields. The Centre has so far organised 55 exhibitions of indigenous textbooks.

(c) Indigenous Authorship

In general, the economic position of the authors is not very sound except some authors of the best selling books. There are very few authors who survive solely on their royalties. Authors sometimes have some complaints with the publishers and Federation of Indian Publishers. They have established a Committee of Authors and Publishers in collaboration with the Authors Guild of India to sort out misunderstanding between two groups. Besides our Copyright Act also protects the rights of authors. Fellowships are granted for writing books by University Grants Commission. Besides, authors are assisted for organising their conventions, workshops, etc. In order to promote the indigenous authorship, the National Education Resources Centre (NERC) convenes meetings of the experts to evaluate the books written by Indian authors. The comments are circulated by NERC to all the universities. This helps popularising their books.

(d) International Standard Book Numbering System

The NERC has been designated as the national agency for the implementation of ISBN system in the country. This system inter-alia helps to promote the export of Indian books and minimise the process of delay in executing the orders. This system helps to identify the publisher of the book and the individual titles. This is an economic way of communication among publishers, suppliers, booksellers and book buyers. A provisions of Rs. 2 lakhs is being made annually for the implementation of ISBN System.

(e) Scheme of Assistance for Book Promotion

Department of Education has a scheme of assistance to voluntary and private publishers for organising seminars, training courses, workshops, annual conventions, etc., connected with book promotional activities. Whenever such requests are received, the Government usually releases grant to meet 75% of the approved expenditure on such activities. During the past 5 years, a number of organisations have been given grants for this purpose.

Besides these promotional activities, there are a number of facilities available to the publishers in terms of availability of paper, purchase of books by Government agencies, tax rebate under Section 80 QQ, NBT Subsidy, help in publicity and postal rates.

(f) Interaction with the Book Industry

In all the Committees of the Government, the Federation of Indian Publishers and Federations of Publishers and Booksellers Associations in India are given representation. All the exhibitions within the country and abroad are organised with their cooperation. In the matter of policy making, their views are always sought as to understand their difficulties.

(g) National Book Development Council

The Government of India set up a National Book Development Board in 1967 to lay down guidelines for the development of book industry in the context of overall requirements of the country. It remained active upto 1974. This Board was revived in 1983 under the name of 'National Book Development Council'. The Council consists of people from all walks of life concerned with books. This is an advisory body which advises Government for the promotion and development of book industry in the country. This Council was entrusted to draft a National Book Policy. The Council constituted a Working Group to draft the National Book Policy which has been submitted to the Government.

The Report has made a number of suggestions and recommendations on various aspects of book promotion in the country. The main recommendations of the report relate to publication of translation of classics and other outstanding Indian works, publication of children's literature by a nodal agency of the Ministry of Human Resource Development, Association of private publishers in publication of school textbooks, publication of university level books in Hindi and regional languages, production of books for non-formal education, establishment of a national organisation of authors on cooperative basis, acquisition of copyright of books in public domain, establishment of Book Finance Corporation, supply of paper at reasonable prices, reduction in postal rates for despatch of books, development of libraries, registration of publishers, etc. These recommendations are being examined in detail by the Government for implementation. □

GOVERNMENT IN PUBLISHING

S. N. Chakraborty*

Right to read and Society's obligation to ensure that everyone has an opportunity to enjoy the benefits of reading cannot be over emphasised in a democratic set-up as in India. It is not only the active and intelligent participation of people in the governmental process upon which the functioning of a democracy depends, but also the responsibility of the Government to interpret and justify their policy to the governed, and to create an informed and intelligent opinion on all matters related to these activities. Even now, printed literature is the best source of passing information on the activities of the Government in India.

Public Sector publishing plays a major role in Indian publishing Industry, in terms of number of titles, volume, and quality of output. One of our major social tasks, by the time we reach the 21st century, is to bring about 100% literacy in this country, and this task cannot be accomplished without substantial increase in Public Sector publishing activities. The areas of activities in publishing by different governmental organisations is well defined. The Central Government official civil publications—Administrative Reports, Developmental Programmes and activities, Commission or Committee Reports, Bills, Supreme Court Reports, Laws, Codes, Rules & Regulations etc., Periodicals, Gazettes, Digests, etc., and Defence publications of Government of India, are handled by the Department of Publication which comes to about 80% of the total Government publications. The Publications Division of the Ministry of Information & Broadcasting publishes informative publications, useful literature, Periodicals, etc. The Survey of India deals with Maps, Charts etc. NCERT and NBT publish Textbooks and important publications at the Central, level, and State Text Books Corporations at the State level take care of the publications of the nationalised books. The Lok Sabha/Rajya Sabha Secretariat brings out publications related to the records of proceedings of the Houses, Rules & Regulations etc. CSIR, Indian Council of Agricultural Research (ICAR), Sahitya Academy, the National Museum, Archaeological Survey of India, Central Universities and other Central Government organisations are publishing specialised publications, and similar organisations operate at the State level for promotion and publication of scholarly works in Indian languages.

Government publications are, in general, rich in content, reliable, inexpensive source of information on every subject af current interest, and are useful to common men, experts, and policy makers. In this age of information explosion, it is necessary that governmental activities, both regular and developmental, should percolate to all strata of society—peasants, educationists, labour, industrialists, management experts; legal practitioners and others. The people are required to be informed and trained. There is a need of dissemination of knowledge through printed publications by the governmental agencies. It is essential to educate people in their day to day work which helps in injecting new ideas, and results of research activities to be transmitted for application for the progress of the nation and to benefit the people as a whole. Even for maintaining law and order, rules & regulations have to be explained to the public through printed literature.

The substantial amount of direct government publishing is done by managing the materials from the different sources, and getting these printed and finishing work done at Government Presses. The emphasis is on accuracy and rich contents, and the price is fixed keeping in view the general purchasing power of the people in the country so that dissemination of knowledge is always at the blessings of the government and not at the patronage of the readers. In this process, the quality in general, the get-up, printing and finishing of the publications may not be the very best that one can have, but utility remains the prime factor. However, where quality of work is required to be of high standard and the publications are required to be preserved for the purpose of reference for a longer period, the inputs used for such publications are of good quality. Printing and finishing work are also of high standard. Some of the Government of India Presses, where most of the Central Government publications are printed, are now equipped with latest photo type setting equipments and most modern printing and finishing machinery. Government publications are, in general, placed in three categories—Periodicals, one time publications for seasonal use, and publications for reference purpose and preservation. The introduc-

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**Controller of Publications, Department of Publications, Govt. of India.*

tion of photo type setting, modern preprocess, offset printing and finishing technology have resulted in better quality output without much increase in price. It has always been the endeavour of the public sector publishing agencies to bring out quality publications at reasonable price. Some public sector publishing agencies are not only publishing quality publications having excellent reading material at low cost, but also promoting bookmindedness among the people. Valuable contribution has been made by the Sahitya Academy for promotion of creative literature in Indian languages. Some works published by the National Book Trust and Publications Division etc., are not only of high standard, but also comparable to the best in any country. Government publishing is not a profit making activity. There are publications which are slow-moving and many of them are not commercially viable. No private sector publisher will undertake publishing of such publications. The growth of literacy and readership through government publications helps create a market for general books. The Textbooks published by Central and State Government Undertakings, are, in general, of high quality, and available at affordable prices. In addition to publishing and making books available at very reasonable prices, the government provides funds for subsidised publication of research and scholarly material of high national importance to gear up the developmental process in the country, although the return in terms of sales of publications may not be commensurate with the cost of production, etc.

Essential and authentic information, well produced through print media at a cheaper cost, generally, do not serve the purpose unless disseminate to the widely scattered population in the country. Due to lack of communication, the distribution remains a source of impediment to the publishing industry. Although some government publishers have their own distribution channels, distribution network in the country in general remains inadequate as a result of which the distributor takes the major share in the book trade. In spite of this, the reading public is not well informed in time about the new arrivals, and this communication gap at times results in fruitless exercise. The library movement in the country is yet to take a giant leap forward. The Book Clubs are almost a non-entity, and in remote areas, there are very few booksellers/book shops exclusively meant for government publications. Even the distribution system of the textbooks requires much improvement. The distribution of textbooks in Bihar State is done through the District Teachers Co-operative, and such organisations in other States are also doing well in this area. The important government offices and voluntary social service organisations at State, District and Block level should be in the regular mailing lists of all the Government publishers, and some of them be appointed Sales & Return agents of government publications. They can have a small Sales Counter attached to the offices which will help in reaching the publications to a larger number of readers throughout the country. Due to recent increase in the postal charges and railway freight, the cost of sending publications to longer distance have become a very costly affair for the publisher. The government publishing agencies, who have their own distribution system have their outlets located only in major cities. There should be further extension of distribution system to the district and block level so that the books are available through the government distributing agencies at a reasonable rate at different parts of the country in a minimum possible time. It is sad that even today, one cannot get some important publications or come across a serious book shop even in the affluent areas of our capital except perhaps, at South Extension or Connaught Place. If that is the situation in the capital, what can one expect in Districts or Talukas. The Railways and Postal Departments should being down the freight charges and the postal charges for the despatch of the books and publications to a considerable lower level, and should devise ways and means for quick and safe delivery of books and publications to their destination. There should be more opening of libraries, Book Clubs, and Co-operative Book Shops throughout the country so that important books and publications reach every nook and corner of the country, and benefit the readers at all levels whom the government publishers are required to serve.

Information is a costly resource and has a finite life time depending upon the problems. It is, therefore, all the more necessary that information flows uninterrupted to all at a reasonable cost which is very important for functioning of the democracy. In the coming years, we need quicker and better communications/transportation, introduction of electronic publishing systems, rigid quality control and effective distribution network so that publications are easily available to all citizens in time. □

WHY BOOKS DO NOT SELL ?

Amrik Singh*

The answer should be obvious. Books do not sell because not many people read them. The question therefore needs to be put differently. It should be : Why People Do Not Read.

My answer to it is three-fold. One, it has a good deal to do with our system of education. Secondly, the electronic media is beginning to displace the habit of book-reading. And thirdly, alongwith so many other things books are becoming more and more expensive. Each one of these reasons requires to be considered in greater depth.

System of Education

Most people acquire the habit of reading around the age of 11 or 12.Till the age of 9 or 10, children have not acquired the proficiency to read for any length of time. They have learnt the alphabet and they can read something but what they cannot do is to read for any length of time or on a consecutive basis. Around the age of 10 or so, however, they come to acquire that proficiency.

Then the next question arises. Are books of the right kind available? If they are, children start devouring them. Sometimes books are available but they are not of the kind which would interest or excite them. In other words the books available should be addressed to their age. At that age there are certain things that attract children and there are others which do not. If books of the right kind are available, it ignites their interest.

Children who come from homes which have books lying around find it easier to take to books. In that sense children from literate homes have an advantage over other children. The other source for books can be libraries. We know very well that the one thing most schools do not have are libraries. A very small percentage do have them but then they would not constitute even .001 per cent of the total number of schools. Public libraries for children are so few that it almost looks like a joke to refer to them. Clearly we are doing everything on our part to make sure that at the age when children are most likely to acquire the habit of reading we do not provide them the necessary facilities. It is possible to say much more on the subject but it should not be necessary to do so.

Only about 5 per cent of those who pass out from schools enter college. What happens in college is somewhat better but it is far from satisfactory. More than a decade ago, as a member of the UGC Committee on the Development of Libraries, I discovered that though the committee consisted of a dozen members, not even one of them had a college background. Almost each one of them was connected with the universities and yet 85 per cent of students study in colleges and their interests cannot be ignored.

Appropriate action was taken however and one or two people with a college background were inducted into that committee. But as everyone is aware, the real funding for colleges comes from State governments and not from the UGC. States do not have anything like a policy for college libraries. On a rough estimate one may say that about 5 per cent of colleges have reasonably good libraries and another 5 per cent can manage to sail through. But the rest of them do not pay the kind of attention to libraries that ought to be paid.

This is one aspect of the problem. The second aspect is no less important. For good and competent teaching, it is important that the teachers teach in such a way that the students feel encouraged or inspired to go to the library and consult books on their own. In a sense, this alone is the hallmark of good teaching. Whether we have this kind of teaching or not is there for anybody to see. The general decline in the performance of teachers is to some extent reflected in the absence of that close linkage between classroom teaching and library consultation which is indispensable for learning.

**Former Secretary, Association of Indian Universities.*

Electronic Media

Coming to the increasing importance of the electronic media, one has only to refer to it and see how the situation has been going against the print media. Radio was not as much of a rival to the book as television is. While the television is still confined to urban areas, it is spreading into the countryside as well; in any case education is more of an urban phenomenon than a rural phenomenon. That being so, what is happening was more or less bound to happen. What is truly disquieting is the fact that we are not doing anything by way of a change of policies to reverse the situation.

Books are Expensive

To come to the third point, if books are beginning to be more and more expensive this is basically for two reasons. One, because everything is becoming expensive. But the second reason is no less relevant. Our book reading public is small. Therefore, the print run of an average book is not particularly high. At one time it used to be 1000 or 1100 copies at the time of the first publication. In certain cases, now, it has even come down to half of that. To some extent this is so bacause there are not many readers, but it is also because of the state of publishing in the country. This particular aspect needs to be examined in greater detail.

With more than a dozen distinct languages in the country, readership is fragmented. The largest number of books are published in English. Hindi too has a reasonably good market, though considering the number of Hindi speaking population in the country, it can and ought to be much larger. Some of the other Indian languages like Malayalam, Bengali and Marathi are doing reasonably well. Nevertheless, the percentage of readership is not high and there are all kinds of limitations therefore.

As far as publishing in English is concerned, there is a peculiar kind of notion on the part of most publishers that they cannot sell beyond a limited number of copies. This notion is unfounded. Quite a number of foreign publications sell in large numbers. It stands to reason therefore that potential readership is there. Only it has to be tapped.

Not only that, there is an odd kind of notion that books should be priced high, and if a few hundred copies can be sold, the publisher would recover his cost and then gradually would make some profit. This is a wrong way of going about the job. The fact of the matter is that our publishers have not shown that kind of enterprise whereby the economies of scale are taken advantage of.

To some extent, this is also linked with organization and structure of book selling in the country. Perhaps no sector of publishing is as poor in our country as book selling is. All kind of reasons have contributed to this state of affairs including the fact that there is paucity of finance. The government has hardly helped at any stage and things continue to be difficult therefore.

State of Libraries

The state of libraries in the country is also an important factor. While some educational institutions do maintain reasonably well stocked libraries, the system of public libraries is at a very elementary stage. The situation is better in some of the Southern states. Still it is far from satisfactory. Not only have we neglected the basic job of making every one literate, we have also not paid enough attention to the needs of the neo-literates. They need special kind of books. But the same are not being produced in the country. West Bengal has tried to do something in this direction but it has not succeeded beyond a point.

Extensive and professionally conducted book reviewing also contributes to the promotion and sale of books. This aspect of publishing has been grossly neglected in our country. Some of the Indian languages have made valiant attempts in this direction. But these attempts are as half-hearted as the ones made in English. Altogether this particular sector of publishing is not given the importance that it should have been given.

In order to make sure that books that people do read and that books do sell, a number of simultaneous steps would have to be taken. The more important of them have been referred to above but a few others can also be thought of. Experience in other countries of the world shows clearly that despite all that is claimed for it, the electronic media is more useful for entertainment than for education. All said and done, therefore, education will have to rely upon the written word. The close connection between education and publishing should thus be obvious. Both of them need to be strengthened and streamlined. At the same time, a network of libraries has also got to be established. It is only when the problem is approached from a variety of angles that we will have anything like success. ☐

Recent Trends in Social Sciences Literature

S.P. Agrawal*

Barring natural sciences, almost everything else attracting clear and logical thinking comes under the vast and ever-expanding umbrella of social sciences. The 'harvest' of recent publications emanating from this scientific thinking in our country bears comparison with the harvest we reaped in the first couple of decades of our Green Revolution before it reached a plateau. It is true that the social sciences 'titles' flooding the markets would prove that for the authors in this branch of knowledge only the sky is the limit. But it is also a timely reminder to the reading public that the blue canopy over our heads, called the 'sky' with all our romantic passion, is merely an optic illusion limiting our sights. Discriminating readers of the contemporary social sciences literature would notice that the harvest presented to them contains a massive quantity of chaff with but a few grains in them. It is almost like mining gold after wading through and sieving a lot of unwanted material. What we need is an academic non-partisan panel in each major publishing centre to act as a guide to publishers exhibiting tinsel goods at present. One is constrained to comment that this purpose is not served by a plethora of book reviews given to the people, having based them on whatever little comes to them by way of complimentary copies. Only the panel suggested here could perhaps give the hallmark of grades—like 'Agmark' on public consumption commodities—on each social science publication or even on other books brought out by publishers. But in our kind of set-up every panel so created will be in danger of being subverted by the various pressure groups—social, political, economic and bureaucratic. The result : back to square one. So we might just as well confine ourselves to a post-mortem of what we have.

As we do this, one of the first features about the recent social science literature attracting our notice is a plethora of books on women, who belong not only to the weaker sections of the society, but are also half the country's population. No wonder, they have the pride of place in any comprehensive shelf for social science publications. One such book is the revised and expanded version of '*Feminism and Nationalism in the Third World in the Nineteenth and early Twentieth Centuries*' by Kumari Jayawardena. According to the writer, except for China, in all the other countries chosen for the study, feminist issues hardly became the points of major debates within the anti-imperialist movements. While women in "the other countries" were used by male bourgeois leaders to add to their strength in their fight against the enemy, they were meant to go back to the kitchen as soon as the goals of the movements were achieved. What Jayawardene does not realize is that women's participation in the anti-imperialist movement marked the starting point in women's political participation. When the cause of women was let down, they were forced to resort to more effective means for their liberation. It should not be forgotten that this is what precisely happened in India during the liberation movement against British imperialism, and we are among the few countries where a woman could rise to be a prime minister. This is not to minimize the plight of women in India even today, but only to show that the writer has not done much homework, at least on India. The 268-page book costs Rs. 160.

In another book '*Speaking of Faith*'—a compilation edited by Diana L. Eck and Devaki Jain—several women have been brought forward for their action and greatness, many of whom had to be tested in the fires of injustice, but they have refused to be silent. There is yet another book '*The Wrongs of Indian Womanhood*' by Marcus Fuller, published originally in 1900, and re-published in Delhi in 1984. The book deals with the reality of child marriages and of the cruelty of 'enforced widowhood' inflicted upon a woman when she loses her husband. In many areas of South India, especially in the countryside, widows are still forced to shave their heads. Social ostracism is matched only by self-imposed austerity by widows themselves even if they are educated. The author talks of the lack of courage and "conviction on the part of young men who went overseas but on return "conformed" and married child brides to please their people as was then the accepted practice. But books such as this belong to what we would like to call another age despite some distant echoes that they might have even today.

These books on women, selected at random, do not contribute much to the present thinking or situations, which demand contemporary treatment and have to be updated in content. In '*Some reflections on Dowry*', the Oxford University Press has published a discourse by M.N. Srinivas on the occasion of J.P. Naik Memorial Lecture for 1983. The thought-

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**Director, NSSDOC-ICSSR, New Delhi.*

provoking piece traces the history of dowry from the old custom of 'dakshina' as part of the ceremony of 'kanyadan' at the time of marriage, and goes on to discuss how it is an anti-social institution, which has influenced the presentday economic behaviour of couples having daughters among different caste groups. The author has suggested an all-out attack on the dowry evil by educating the people and the recognition by them that men and women are equal partners. But even this publication does not go far enough to include the presentday menace of bride burning. A thorough research on current evils is a *sine qua non* of progressive thinking, which must find more and more space in current publications on social science themes.

Take the case of sati—a burning shame in our present times. When the crunch comes, frantic efforts are made to save one's skin. Following the sati tragedy in Deorala village in Rajasthan, scapegoats were found to be much in demand. On whom will the chopper fall ? Everybody was seen passing the buck soon after the hapless young widow, Roop Kanwar, was burnt alive with her dead husband in her village. Long after the gruesome tragedy, the police and a few officials arrived on the scene and started proceedings against the girl's in-laws, but made no arrests. The mela had already started around the spot where Roop Kanwar sat on the pyre with her dead husband's head in her lap before she was set alight by her younger-brother-in-law. The question is : should social science publications focus light on current events or should writers put off these exercises for a post mortem from published documents 10 years hence?

As the latest discovery of the half-burnt body of a woman on the pyre of her husband in Kheda Misr village in Lalitpur district in Uttar Pradesh would show, the Deorala episode was not the last known sati tragedy in India. Social scientists are obliged to do the necessary field work to unravel the ramifications of social disasters perpetrated by heartless men of our own society, perhaps living next door. Apart from the official bungling in these tragedies, the role of women's voluntary organizations in big cities should be thoroughly discussed by social scientists. The story is doing the rounds in Delhi that when Roop Kanwar tragedy took place, for many days it never occurred to women activists in Delhi that they should rush to Deorala. Instead, their daily duty was to move from Speaker Balram Jakhar's house to Union minister Buta Singh's house to their own houses—to relax after their labours in air-conditioned luxury. To them, it was apparently pointless to rush to Rajasthan where some Rajputs were brandishing their naked swords in Deorala village in preparation of the 'chunari' festival.

What the society expects from the writers involved in social sciences in some degree of dedication to values. The latter have to face the challenge of social change, and social sciences cannot afford to remain aloof and objective. As it has been aptly said, those in social sciences have to take sides, and the side it should take is that of the proverbial underdog. This brings us to a publication, which deals with the *Challenge of Social Change*' and is edited by Orlando Fals Borda. Human beings, their aspirations, frustrations and capacity to mobilise are essential factors in the process of change, and, as the contributors to this volume suggest, participation in the decision making process is of vital importance. One of the writers here makes a sound contribution to the thinking process : "Each society should be studied on its own terms and modernization, or the need for it, is not inherent in all societies ; some societies develop according to their traditions and at their own pace without jumping on to the bandwagon of modernization." The social scientist has now been able to find out strategy to channelize frustration and tension so as to avoid or control unproductive conflict. Another contributor has described sociological intervention becoming more and more popular as "participatory action research". Action research groups have met with recognition and initial success in India too, with their "I know what you need" approach. This is the kind of books people in our country are looking forward to, and it is for social scientists and publishers, together, to make way for the books we need, not the made-easy-type of publications being served to us.

An example of some recent off-beat writings is provided by 'Literature, Social Consciousness and Polity' edited by Iqbal Narain and Lothar Lutze. It is a collection of papers presented at the VIII European Conference on Modern South Asian Studies at Talberg in Sweden in 1983 and published in 1987. These essays are based on the premise that a study of literature can enrich our understanding of the subtle interaction between the emerging consciousness and the prevailing political structure. They give us the understanding of resilience and change in south Asian societies. What should be appreciated here is that the focus is not only on the 'big few' but also on the numerous others who have played an important role in shaping the social texture through their responses to new ideas, structures and processes. Running through the essays is the common thread, which is the quest for national integration in the pull and swing of cultural pluralism in the region as a whole.

Another area, where we do not have enough purposeful writing is the one pertaining to development as a whole, particularly with reference to India. Our planning process started fifty years ago, when the Indian National Congress set up a panel with Subhas Chandra Bose at the helm of its affairs to produce what could be rightly described as India's First Plan. Though the British government in India could never be expected to follow it up, we still have the document, projecting the hopes and aspirations of freedom-fighters led by Mahatma Gandhi. In recent years, fortunately, we have had a number of remarkable contributions in this area, one of them being '*Development Planning—the Indian experience*' by Sukhamoy Chakravarty, published by Clarendon Press, Oxford, last year. The book deals with the experience of development planning in India over the last thirtyfive years. It explains the analytical considerations which went into the formation of the country's development strategy, initially chalked out by Nehru and Mahalanobis, and the modifications which were introduced in later years to keep pace with our experience. Dealing with the structure of our Five Year Plans and the problems of their implementation, this is probably the first book to provide a comprehensive review of Indian planning in the light of development theory and the many debates on planning that have been carried out in other countries. The present publication is an expanded and enriched version of Chakravarty's discourse delivered as the Radhakrishnan Memorial Lectures at All Souls' College, Oxford, in 1985. This excellent publication ends with an overall assessment, ending with the words : "If Indian society values growth with equity, as plan documents repeatedly emphasize, India has still a long way to go in adapting institutions and aspirations in that direction. Neither the recently discussed virtues of the free market mechanism nor the earlier panacea of central planning would appear to carry much conviction today. Societies grow in historical time characterized by irreversibilities, and history does not perform controlled experiments for our benefit. Hence the task for perspective planning remains to minimize avoidable social costs. However, the need for flexible adaptable operating mechanisms is very much there. Above all, there has to be a much greater degree of political consensus on what is attempted. India benefited from this in the first decade of planning. It is still greatly needed in the remaining years of this century. No facile conclusion is warranted" Based on this realistic note, there is enough room for worthwhile follow-up books on development in the near future to give the necessary perspectives to our planners, especially those associated with the Planning Commission.

Another book which merits attention here is '*Development Policy and Administration in India*', edited by Ramesh K. Arora and P.C. Mathur. It is a collection of original essays by well-known social scientists, compiled to honour Prof. M.V. Mathur. The subject areas include policy potential of social sciences, strategies and policies for agricultural development, patterns and policies for urban development, strategies of industrial development, public enterprises, energy management, university education, administration for nation-building, and a number of other allied topics.

Publishers and writers should know what the readers want to read, not what they, in their wisdom, think what is easy for them to bring out and to make them money-spinners at the same time. People now would like to know how best to tackle communalism to make India a truly secular state. A book like '*Communalism in Modern India*' by Bipan Chandra is one of those most welcome to readers as well as to our various libraries. The author differentiates between communalism and separatism. While separatism was only the last phase of Muslim communalism, the conflict now is not between the Hindus and the Muslims —as many assert—but between Hindu and Muslim communalism on the one hand and the secular nationalist forces on the other. Why do not political scientists get at the root of the problems ? Bipan Chandra says that the Indian National Congress followed the politics of compromise between the Muslim and Hindu communalists. As a result of this, the Congress could not launch a resolute struggle against communalism. No sustained campaign was ever started to educate the masses and to expose the real designs of the communalists. This weakness on the part of the main national party, says the author, gave ample opportunity to the communalists from both sides to strengthen their respective position. Bipan Chandra's book has been welcomed as a major contribution to the study of communalism.

A survey of recent social science publications also brings to light the subject of development of weaker sections. G.D. Kabra in his book, "*Development of Weaker Sections*" tries to explain why more than three decades of planning on the part of the government has failed to bring about any appreciable change in the condition of the weaker sections of the society. The relationships between the bureaucratic organization on the one hand and the beneficiaries on the other has been examined from the points of view of the various administrative constraints and theoretical assumptions. The 'segregation approach', which favours separate institutions for the weaker sections, and the 'configuration approach', wanting ways and means to make the existing institutions more efficacious have been analysed. The manner in which innovations are accepted by the people at the grass-roots has been examined by the author. The analysis of the socio-economic background of small and marginal farmers reveals that they find themselves unable to take advantage of the bank loans and other facilities because of meagre resources of land and animals, monsoon hazards, lack of irrigation supplies and scarcity of fodder for animals. The writer suggests that there should be steady improvement in the relationship between the officials and the beneficiaries, with a clear change of attitude on the part of the officials. A related book on rural poverty entitled *Direct Attacks on Rural Poverty : Policy, Programmes & Implementation*", by Prabhu Ghate tries to analyse some of the economic, socio-cultural and administrative constraints which come in the way of the anti-poverty programmes. Our experience is that unless the social science books are readable, interesting and useful, they stay in the racks only to be dusted every now and then. □

BIRLA INSTITUTE OF TECHNOLOGY

MESRA : RANCHI

(A Deemed to be University)

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Allahabad, Agra, Bhagalpur, Bhubaneswar, Bhopal,
Bangalore, Bombay, Calcutta, Chandigarh, Delhi,
Gauhati, Ghaziabad, Gorakhpur, Hyderabad,
Jamshedpur, Jaipur, Lucknow, Madras, Muzaffarpur,
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provided sufficient number of candidates opt for the proposed centres.

Qualifications

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Application form can be obtained by post on pre-payment of Rs. 25/- by crossed Postal Order, payable to the Registrar, Birla Institute of Technology, Mesra, Ranchi. The request should accompany a self addressed and stamped envelope of size 26 cm. x 12 cm. bearing postage stamps of Rs. 1.80 P., clearly mentioning the Form required i.e. Bachelor of Engg. or B. Pharm.—as the case may be.

J. B. Saksena
REGISTRAR & OSD

Indian Books on Science & Technology 1983-87

An Analysis of Library of Congress' 'Accessions List, South Asia'

Kamlesh Arora*
A.S. Rao**

Among several countries of the world, India has none too insignificant in place book production. It ranks 4th in Asia and 18th in the whole world. The total number of books produced by some of the leading countries of Asia and the world are given in the following table:

Rank	Country	Total No. of Books Produced
Asia		
1.	Japan (1983)	44,253
2.	Korea, Republic of (1984)	35,446
3.	China (1984)	34,920
4.	India (1984)	9,954
World		
1.	U.S.S.R. (1984)	82,790
2.	U.K. (1984)	51,411
3.	Germany, Federal Republic of (1984)	48,836
4.	Japan (1983)	44,253
5.	France (1984)	37,189
6.	Korea, Republic of (1984)	35,446
7.	China (1984)	34,920
8.	Spain (1984)	30,764
9.	Brazil (1982)	19,179
10.	Colombia (1984)	15,041
11.	Italy (1984)	14,312
12.	The Netherlands (1984)	13,209
13.	Switzerland (1984)	11,806
14.	Yugoslavia (1984)	10,918
15.	Denmark (1984)	10,660
16.	Hungary (1984)	10,421
17.	Sweden (1984)	10,373
18.	India (1984)	9,954

The figures given in the brackets are years for which the data is available. The source of information for the above table is the 'UNESCO Statistical Yearbook 1986'. The figures for U.S.A. are not reflected in the above table as the same are not listed in 'Unesco Statistical Yearbook 1986'.

Analysis

An analysis of the book production of a country is in a way a reflection of the efforts of that country to produce information and knowledge. With this premise, an analysis of the books published in Science and Technology during 1983-1987 in India has been carried out. The source for this which indicates the quantity and quality of book production in India could appropriately be the Indian National Bibliography. This is a monthly publication cummulated annually. But on account of production delay in bringing out the issues, it does not provide current data for statistical analysts. However the Library of Congress 'Accessions List, South Asia', lists monthly the acquisition of books produced in South Asian countries which are of interest to American Libraries to support programmes relating to South Asian studies. A fairly good number of books produced in a country are listed language-wise in the 'Accessions List, South Asia'. The books on Science and Technology form a considerable part of this list.

The main objective of this study is to indicate the total no. of Indian books published for the last 5 years (1983-1987), their distribution by subject groups and the U.S. interest in Indian books. The analysis restricts itself to books in the English language, as books in other Indian Languages in Science and Technology are few and far between. Secondary publications like catalogues, bibliographies, etc., Laws and Statutes, Reports of various adhoc commissions and legislative proceedings of S & T subjects etc., have not been included for the present study.

Methodology

Every issue of the 'Accessions List, South Asia' for

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the past 5 years was scanned and items listed there were identified and grouped year-wise and then under seven subject groups. The year-wise data is represented in the following table:

Year	Total No. of Books	S & T Books	% of S & T Books
1983	2736	477	17
1984	4074	629	15
1985	3360	462	14
1986	2827	383	14
1987	2490	415	16

The above Table shows total No. of books and Science and Technology books listed in the 'Accession List, South Asia' for the period 1984-1987. It also shows a fall in book production from 1984-1987 whereas the percentage of S & T books for these years has slightly increased. The above table has also been presented graphically in Fig. 1.

Books on Science & Technology which were produced during 1983-1987 have been grouped under various subject groups and the total No. of books for each group for the last 5-year period is also calculated. The above mentioned data is represented in the following Table :

Subject	Year					
	1983	1984	1985	1986	1987	Total
Science & Technology in General	13	56	26	14	19	128
Physical & Earth Sciences	48	92	65	81	76	362
Biological Sciences	48	92	83	73	39	335
Health Sciences	56	40	32	12	28	167
Engineering	105	132	62	53	61	413
Agricultural Sciences	126	146	156	115	103	646
Others	43	37	16	39	78	213

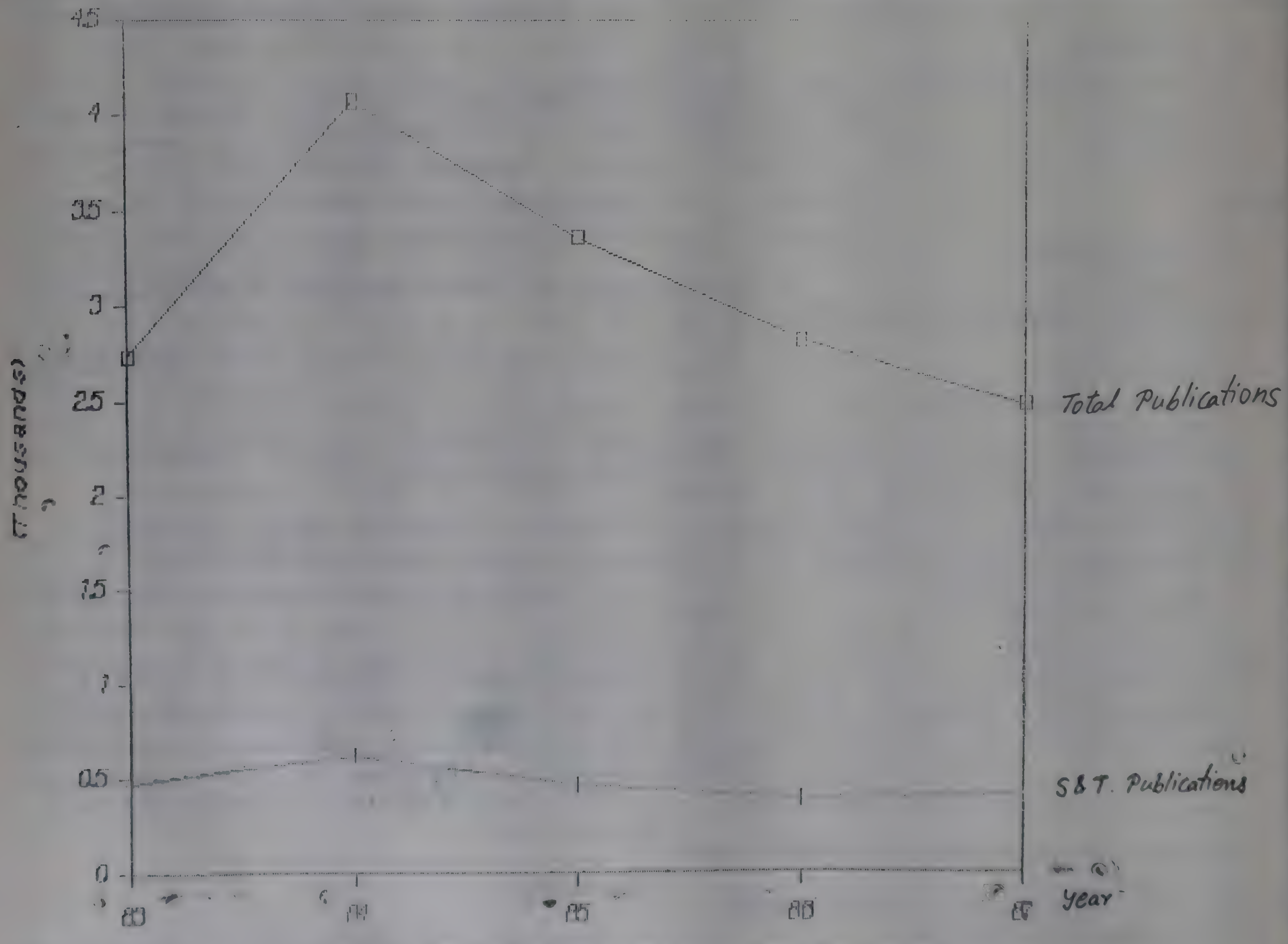

Fig. 1. Year-wise Breakup of Indian Book Production.

The above Table shows year-wise break-up of S & T books in 7 subject groups. Some subjects like Mangement, Rural and Urban development etc., which are accounting for a small percentage of total S & T publications have been grouped under 'Others' category. From the above Table it is clear that Agricultural Sciences are accounting for approx. 27% of the total S & T books, followed by Engineering books which account for 17%.

Observations

1. The study shows that the S&T publications form 15% of the total books listed.

2. Even though there is a fall in the total No. of books listed for the years 1984-87, the percentage of S & T books has slightly increased.

3. The Indian S & T publications are rich in Agriculture, Biological and Geological sciences.

4. Most of the S & T publications listed are about the resource mapping of India like flora and fauna of various regions, the mineral exploration, farming methods on various soil types and in different climatic conditions.

5. Although it is not reflected in the study we have observed that U.S. is also interested in procuring books on regulatory information of the Govt. of India and State Govts. from time to time on subjects like Wild Life, Forestry, Ground Water Resources, etc.

6. Some of the important S & T publications noticed during the study are given as a bibliography in Appendix 1.

APPENDIX I

Important Indian Books on Science and Technology published during 1983-1987

1. **Ali, Salim A.**
   Handbook of the birds of India and Pakistan : together with those of Bangladesh, Nepal, Bhutan and Sri Lanka/ Salim Ali and S. Dhillon Ripley.—Delhi : Oxford, 1983—xlii, 737p.
2. **Banerjee, Brojendra Nath**
   Bhopal gas tragedy : accident or experiment/Brojendra Nath Banerjee—New Delhi : Pacibus Pubs. and Dist., 1986—281p.
3. **Bhide, A.D.**
   Solid waste management in developing countries/A.D. Bhide, B.B. Sunderesan—New Delhi : INSDOC, 1983—222p.
4. Biogas handbook.—Pilot ed.—Bombay : Tata Energy Research Institute Documentation Centre, 1982—133p.
5. **Bose, Jagadish Chandra, Sir, 1958-1937.**
   Life movements in plants / by Sir Jagadish Chandra Bose—Delhi : B.R. Pub. Corp., 1985—x, 251p.
6. Computer simulation/edited by N. Seshagiri, R. Narasimha—Bangalore : Indian Academy of Sciences, c 1979—171p.
7. **Gopalachari, N.C.**
   Tobacco/N.C. Gopalachari—New Delhi : ICAR, 1984—327p.
8. Growing focus on Antarctica/edited by R.C. Sharma.—1st ed—New Delhi : Rajesh Publications, 1986—xxxiv, 286p.
9. **Heptulla, Najma.**
   India's progress in science and technology : continuity and change/Najma Heptulla—New Delhi : Oxford & IBH Pub. Co., c 1986.—xiv, 117p., [12]p. of plates.
10. History of astronomy in India/editors, S.N. Sen, K.S. Shukla—New Delhi : Indian National Science Academy, c 1985—525p.
11. **Iyer, K.V.**
    Pollution control in industry/K.V. Iyer, L.R. Kumar Delhi : K.V. Iyer Assoc., 1986—xvi, [503]p.
12. **Jaggi, O.P.**
    History of science and technology in India/by O.P. Jaggi: foreword by D.S. Kothari—Delhi : Atmaram, 1969.
13. **Kothari, D.S.**
    Atom and self/by D.S. Kothari—Bombay : Bharatiya Vidya Bhavan, 1983—xv, 58p.—(Meghnad Saha Medal Lecture; 1978).
14. **Maheshwar Dayal, 1915—**
    Energy today and tomorrow/Maheshwar Dayal—New Delhi : Publications Division, Min. of Inf. & Broadcasting, Govt. of India, 1983—102p.
15. **Menon, M.G.K.**
    Technology for progress/M.G.K. Menon—New Delhi : Training Division, Dept. of Personnel and Administrative Reforms, Govt. of India, 1983—34p.
16. **Mukherji, Visvapriya.**
    Jagadish Chandra Bose / Visvapriya Mukherji—New Delhi : Publications Divisions, Min. of Inf. & Broadcasting, Govt. of India, 1983—vi, 128p.
17. **Narlikar, A.V., 1940.**
    Superconductivity and superconducting materials/A.V. Narlikar & S.N. Ekbote—New Delhi : South Asian, c 1983—xi, 294p.
18. Profiles in scientific research : contributions of the fellows—New Delhi : Indian National Science Academy, 1986—2v.
19. **Ramanna, Raja, 1925—**
    A 15-year programme for nuclear power in India/Raja Ramanna—New Delhi : Indian National Science Academy, 1984—ii, 34p.
20. **Randhawa, M.S., 1909—**
    A history of agriculture in India/M. S. Randhawa—New Delhi : ICAR, 1980.
21. Science, development and environment/edited by V.P. Agrawal, S.V.S. Rana—Mazaffarnagar : Society of Biosciences, 1987—iii, 332p.
22. Science in India : 50 years of the Academy/edited by C.N.R. Rao, H.Y. Mohan Ram—New Delhi : Indian National Science Academy, 1985—142p.

INDIAN COUNCIL OF AGRICULTURAL RESEARCH

Jawaharlal Nehru Awards for Outstanding Post-graduate Research in Agriculture 1988

The Indian Council of Agricultural Research invites applications from post-graduate students who have obtained their Ph.D degree during the year 1987 in the fields of Agriculture/Animal Sciences (including Fisheries) and home science for "Jawaharlal Nehru Award for Outstanding Post-graduate Research in Agriculture-1988". There will be ten prizes of Rs. 5,000/- each for outstanding research work of the following nature :

"Which may have bearing on finding a solution to any important national problem in the field of Agriculture, which is likely to have an impact on increasing the production or improving the quality of any important crop for human nutrition or animal productivity or increasing the technological efficiency of any process of economic importance connected with agriculture".

Candidates shall be required to submit the following documents through the Head of the Institute from where the thesis has been obtained :

1. A copy of the thesis submitted by them for the award of the doctoral degree.
2. A certificate from the guide of the candidate for Ph.D degree stating the extent to which the work is the candidate's own contribution.
3. 6 copies of the synopsis indicating precisely and in concise terms the work done by the candidate.
4. 6 copies of the bio-data with complete address for correspondence with telegraphic address if possibles.

The certificate awarded to the candidate for Ph.D. degree may also be sent. There is no prescribed proforma for applying for this award. Each candidate will be judged on the basis of the originality and the applied value of the investigations as revealed in the thesis submitted by him. In all matters relating to the award the decision of the Council shall be final and no correspondence on this account will be entertained.

Application with complete documents as mentioned above addressed to Sh. R. C. Mishra, Dy. Secy. (A), Indian Council of Agril. Research, Krishi Bhavan, New Delhi-110001 should be sent so as to reach on or before **31st March 1988**. The last date for candidates in the Andaman and Nicobar Islands, Lakshadweep State/Union Territory in the North Eastern Region, Ladakh Division or J&K State and Sikkim is **15th April, 1988**. The award winning thesis will be retained by the Council for record. In case the application is not accompanied by a copy of thesis and the required number of synopsis and bio-data, the application is liable to be rejected at the screening stage.

Hari Om Ashram Trust Awards for the Year 1988

Nominations are invited for the Hari Om Ashram Trust Awards for the year 1988. Three awards of the value of Rs. 10,000/- each in cash or kind or both are given every year for outstanding original research, fundamental or applied including inventions, discoveries etc. leading to results of practical value in any field or subject within the purview of research in agricultural sciences, forest farming and social forestry and animal sciences (including fisheries).

All scientists engaged in research in the fields of agriculture, forest farming and social forestry, animal husbandry and allied sciences in India shall be eligible for the awards. The results of research achieved/

ontributions made during the five years preceding the year of the award shall only be considered for the wards. In the case of claims based on evolution of new varieties/strains, the final trials should have been ompleted within five years preceding the year of award.

Nominations can be made amongst others by Vice-Chancellors of agricultural universities or other uni- ersities having faculty of agricultural or biological sciences, Directors of Research Institutes including prin- iples of agricultural and veterinary colleges, Presidents of scientific societies, academies and heads of the rincipal scientific establishments in the country.

Nominations for the awards should be supported by a statement of work, achievement accomplished r performed by the candidate who is being nominated and a reasoned justification for the nomination ogether with reprints of publications or other supporting data.

The last date for refeiving nominations for the awards is **31st March, 1988**. The last date for candidates in the Andaman and Nicobar Islands, Lakshadweep States/Union Territory in the North-Eartern Region, Ladakh Division of J&K States and Sikkim is **15th April, 1988**. Five copies of the nominations on he prescribed proforma for the award should be sent a sealed cover marked 'Confidential' to Shri R.C. Mishra, Deputy Secretary (A), Indian Council of Agricultural Research, Krishi Bhavan, New Delhi-110001. The copy of the proforma can be obtained from him by sending a self addressed envelope in the size of 27 cm x 12 cm. Applications/nominations received without five sets of reprints of publications are liable to be rejected at the scrutiny stage.

Dr. Rajendra Prasad Award for the Best Original Standard Works in Hindi on Agricultural including Animal Sciences and Fisheries—1988

Applications are invited for Dr. Rajendra Prasad award for the year 1988 for standard original books/ manuscripts in Hindi on agriculture, including animal sciences and fisheries published/written between April 1987 to March 1988. Books written by more than one author can also be considered. Five copies of the books/manuscripts for the award may be sent in a sealed cover marked 'Confidential' to Shri R.C. Mishra, Deputy Secretary (A), Indian Council of Agricultural Research, Krishi Bhavan, New Delhi-110001, latest by **31st March, 1988** in a prescribed form obtainable from him. The last date for candidates in the Andaman and Nicobar Islands, Lakshadweep States/Union Territory in the North-Eastern Region, Ladakh Division of J&K State & Sikkim is **15th April, 1988**.

In all matters relating to the award the decision of the Council shall be final and no correspondence on this account will be entertained.

Rafi Ahmed Kidwai Memorial Prizes for Agricultural Research for the Biennium 1986-87

Nominations are invited for the Rafi Ahmed Kidwai Memorial Prizes for Agricultural Research for the biennium 1986-87 carrying an amount of Rs. 10,000 (Rupees ten thousand only) in cash or kind or both, a citation and a certificate.

The award is given once in two years to Indian Scientists for outstanding research, fundamental or applied, including inventions, discoveries, etc. leading to results of practical value in any field or subject within the purview of research in agriculture, animal husbandry and fisheries, including agricultural, economics, agricultural statistics and nutrition. Only results of researches/contributions made during the five years preceding the year of award shall be considered for the award. It the case of claims based on evolution of new varieties/strains, the final trials should have been completed within five years preceding the year of award.

Nominations can be made amongst others by Vice-Chancellors of agricultural universities/general universities with faculties of agricultural or biological sciences, Directors of research institutes, including Principals of agricultural and veterinary colleges, Presidents of scientific societies and academies and heads of the principal scientific establishments in the country such as CSIR, BARC etc.

Nominations for the award should be supported by a statement of work, achievement accomplished or performed by the candidate who is being nominated and a reasoned justification for the nomination together with reprints of publications or other supporting data. In all matters, decision of the Council shall be final and no correspondence on this account will be entertained.

The last date for receiving the nominations for the award is **31st March, 1988**. The last date for candidates in the Andaman and Nicobar Islands, Lakshadweep States/Union Territory in the North-Eastern Region, Ladakh Division of J&K State & Sikkim is **15th April, 1988**. Proposals (in quadruplicate) on the prescribed proforma for the award should be sent in a sealed cover marked 'Confidential' to Shri R.C. Mishra, Deputy Secretary (A), Indian Council of Agricultural Research, Krishi Bhavan, New Delhi-110001. The copy of the proforma can be obtained from him by sending a self addressed envelope in the size of 27 cm x 12 cm. Applications/nominations received without four sets of reprints of publications are liable to be rejected at the scrutiny stage.

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All research workers engaged in research in agriculture, animal husbandry, fisheries and allied sciences in tribal areas (tribal areas for this purpose are those notified by the Ministry of Home Affairs, Govt. of India) shall be eligible for the award. The results of research achieved/contributions made during the five years preceding the year of the award shall only be considered for the award. In the case of claim based on evolution of new varieties/strains the final trials should have been completed within five years preceding the year of the award.

Nominations can be made amongst others, by the Vice-Chancellors of the agricultural universities or other universities which have a faculty of agricultural or biological sciences, Directors of research institutes including Principal of agricultural and veterinary colleges, Presidents of scientific societies, academies and heads of principal scientific establishments in the country such as Council of Scientific and Industrial Research, Bhaba Atomic Research Centre etc. Each nomination for this award should be accompanied by a detailed statement of work and attainments of the nominee and a reasoned justification for the nominations together with the reprints of publications or other supporting data. Also, a certificate of residence in the tribal area where the work has done obtainable from Head of the Institutes, should be appended. It is emphasised that the award is intended for recognising outstanding research carried out in tribal areas, and hence the scientist(s) concerned should have lived and carried out the research in any of the tribal areas notified by the Ministry of Home Affairs.

The last date for receiving nominations/applications is **31st March, 1988**. The last date for candidates in the Andaman and Nicobar Islands, Lakshadweep States/Union Territory in the North-Eastern Region, Ladakh Division of J&K State & Sikkim is **15th April, 1988**. Four copies of the nominations on the prescribed proforma for the award should be sent in a sealed cover marked 'Confidential' to Sh. R.C. Mishra, Deputy Secretary (A), Indian Council of Agricultural Research, Krishi Bhawan, New Delhi-110001. The copy of the proforma can be obtained from him by sending a self-addressed envelope in the size of 27 cm x 12 cm. Nominations received without four sets of reprints of publications are liable to be rejected at the scrutiny stage.

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Nominations are invited for ICAR Award for Team Research for the biennium 1987-88. The award is given once in two years to interdisciplinary teams of research workers for outstanding research work in the field of agriculture including agricultural economics and statistics., animal husbandry and fisheries in the form of a scroll of honour and a medal to each member of the award winning team.

All scientists engaged in research in the field of agriculture, animal husbandry and fisheries sciences in India shall be eligible for the award. The award of each prize shall be made for notable and original inter-disciplinary research both fundamental and applied as reflected in books, monographs, papers or other forms of published account of outstanding research work, inventions or discoveries. In the case of contributions like new crop varieties or new breeds of animal at least 3 years' date on the performance of the strains will have to be provided. The results of research achieved/contributions made by the team should be during the five years preceding the year of award.

Nominations can be made amongst others by Vice-Chancellors of agricultural universities or other universities having faculty of agricultural or biological sciences, Directors of research institutes including Principals of agricultual and veterinary colleges, Presidents of scientific establishments in the country such as CSIR, BARC, etc.

Nominations for the award should be supported by a statement of the inter-disciplinary team work, achieved, accomplished or performed by the team which is being nominated and a reasoned justification for the nomination together with the reprints of publications or other supporting data. In all matters relating to the award the decision of the Council shall be final and no correspondence on this account will be entertained.

The last date for receiving the nominations for the award is **31st March, 1988**. The last date for candidates in the Andaman and Nicobar Islands, Lakshadweep States/Union Territory in the North-Eastern Ragion, Ladakh Division of J&K State & Sikkim is **15th April, 1988**. Six copies of the proposals on the prescribed proforma for the award should be sent in a sealed cover marked 'Confidential' to Shri R.C. Mishra, Deputy Secretary (A), Krishi Bhavan, New Delhi-110001. The copy of the proforma can be obtained from him by sending a self-addressed envelope in the size of 27 cm x 12 cm. Applications/nominations received without six sets of reprints of publications are liable to be rejected at the scrutiny stage.

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THE FUTURE OF THE BOOK

S.S. Murthy*
V.K. Rangra**

The book is the most powerful medium which has revolutionised the thoughts and ideas of man and has played a pivotal role in the religious, social, economic and technological developments in the world. It has been a convenient mode of preserving facts and ideas and making them readily available to millions of readers. In its physical form, as commonly known and used, it is the printed matter on paper sheets held together and protected by a cover. But in fact, it is much more than that. Book symbolises ideas, and thought processes which the author wants to convey to its readers. The book has undergone changes over years, in its content, presentation of ideas and its physical form.

History

Let us consider how the book has changed in shape during several periods of time. Man first started writing with his finger on earth but the necessity to preserve the writing made him think of using clay tablets. Thus we find that in ancient civilization, the Sumerians, Babylonians and Assyrians wrote on clay tablets. Some of the clay tablets from the library of Ashurbanipal of Nineveh are still preserved in the British Museum. The Egyptians brought into existence the roll form of book using the papyrus reed which abounds along the river Nile. The word paper had its origin in papyrus as the two products resembled each other. In the 2nd century BC Eumenes II, King of Pergamus finding papyrus hard to preserve, introduced leather or parchment. This writing medium offered both of its sides for writing purpose and being flexible could be folded and stitched for proper handling. The roll form of book whether of papyrus or parchment measured about 16 ft. The roll was held in the left hand and unrolled with the right. It was wound on wooden handles and fitted with title tags and storage cases. Plutarch stated that 200,000 book rolls were transferred from Pergamene library to Alexandria as a gift from Antony to Cleopatra. The Romans made further improvements by using smooth wooden boards coated with wax and hinged on thongs at the back so that they could close and protect the writing inside. This was called Codex—a Latin word for book.

The Chinese wrote or incised on animal bones or tortoise shells. Although inscriptions were made on bronze, stone and pottery, the direct ancestry of Chinese book is traced to bamboo or wooden slips and silk rolls. Indians in ancient and medieval period used plam leaves known as tala patra and bhuraj patra. After the death of Buddha, the Tripitaka was first written on palm leaves. A detailed description of bhuraj patra book called 'Punthi' was given by Alberuni in his travelogue. Ashoka spread the message and teachings of Buddha as inscriptions on pillars and stopas.

Many of the medieval books made in monasteries and royal courts were richly decorated and profusely illustrated. A ninth century volume of the four Gospels available in the Pierpont Morgan Library in New York, had 327 gems and raised figures of hammered gold. A sixteenth century book Hamzanama runs into 14 volumes and had hundreds of illustrations which were considered to be the best of the Mughal paintings.

The paper, the most popular medium came later. It is believed to be invented by a Chinese called Tsai-Lun in 105 AD and by the sixth century it was put into common use. A famous book of 868 AD, called Diamond Sutra which is presently preserved in the British Museum is a roll book made up of seven sheets of paper pasted end to end.

To John Guttenburg of Mainz goes the credit of inventing printing, who produced between 1450-1455, the 42-line Bible which was the first printed book in the world. William Caxton who set up shop at Westminster, printed the first book in England in 1477 entitled 'Dictes or Sayengis of the Philosophers'.

Present Scene

The present book on printed paper has stayed for quite a long time with its tremendous growth rate. Prof. Allen Kent has estimated that there are about 30 million printed books (titles) in the world since the times of Guttenburg. According to Verner W. Clapp the world publication has been doubling every forty

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Defence Scientific Information and Documentation Centre, Delhi.

five years during the last five centuries—doubling roughly three times as fast as the growth of world population. To overcome the problem of housing and transportation of the ever increasing bulk of printed matter and also to maintain secrecy in official records, the microphotography came into use to reduce the size of the documents. The first large scale use of microphotography was made for sending messages through pigeons as a carrier during the Siege of Paris in 1870. Through microphotography the book is miniaturised to take the form of microfilm, microcard, microfiche etc. A normal microfiche of size 105 mm x 148 mm i.e. A-6, contains 98 pages of text. An advanced version of microfiche called superfiche may contain as many as 1000 pages. A 100-ft microfilm roll holds about 1000 pages. A microcard may hold 100-120 pages of the original text. The micrographic material commonly known as microforms cannot be read through naked eye as we read books. Reading devices like microfilm/microfiche reader are to be used for reading them. Modern information centres depend more and more on microfiche as an economic means of document preservation and supply. The National Technical Information Service (NTIS) of USA, the largest holder and supplier of technical reports literature, has in stock over 1.5 million documents in microform. A number of publishers are bringing out their publications in microform in addition to paper form.

A new device in microprinting was evolved by George Davies and Hedda Wertheimer in which the normal print size is reduced to 10:1 and is printed on PVC paper. The standard reader is a pair of wide coverage binoculars. By this process the Oxford English Dictionary was reduced from 13 to 2 volumes.

The book changed its shape and form to meet the needs of special readers such as the physically handicapped. The book appeared in Braille which the blind use extensively. Sometime back a team of Yugoslav scientists invented a book that talked. It was based on the system of transferring sound to paper similar to the one used in making talkies. The reader moves a device which looks like an ordinary pen over the text, the optically printed lines, are transmitted to a photo-electronic detector whose signals are intensified and then transmitted to a loudspeaker, transistor or radio set as desired.

The emergence of other information technologies like those of computers, has added new dimensions to the form of the book. The computer because of its advantages of large storage capacity, high speed of retrieval, fast manipulation of data, and the portability of data to distant places through telecommunication networks, is now widely used as a medium for recording and retrieval of information. According to F.W. Lancaster who is the author of the concept of paperless society, the paper will cease to be the medium of storage and transfer of information and will be replaced by electronic media by the end of this century. A large number of journals and reference books are already being published in machine readable media. Almost all important indexing/abstracting journals are now available in the form of computerised data bases and can be accessed online i.e. through telecommunication networks.

Besides bibliographic databases, some of the full-text databases like LEXIS (on legal system) is available online. The World Book Encylopdaedia comprising ten million words is available online through computer network in Europe. Network subscribers in various advanced countries today have all kinds of books available on their home computers. The latest is Blind Pharoah a novel by Burke Campbell who spent 62 hours composing it on his Apple III computer and made it available immediately over an electronic network. The Oxford English Dictionary along with its four supplements comprising some 22000 pages is being put on the computer.

Video technology because of its capacity to simultaneously record picture and sound, became more popular for recording books especially the works o art. The video cassettes are ideally suited for this purpose because of their size which is almost the same as that of a book and their reading on TV screen through a Video Cassette Player (VCP). The H.W Wilson Company has brought out "American Storytelling" series in 8 video cassettes each of 30 minutes duration.

Recently another medium combining the advantages of computer and video technology with vas amount of storage capacity has come into use in the form of Compact Disc. A version of this disc, called CD-ROM (Compact-Disc-Read-Only-Memory) i getting more and more popular as a medium of storage and retrieval of information containing hig quality colour pictures and text. The common siz of a CD-ROM is 5¼ inches in radius and can carr about 30,000 pages of text. The CD-ROM system comprises the CD-ROM drive, a personal compute with monitor and keyboard and an optional printer The Domesday book of William, the Conqueror o the Great Britain has been put in a CD-ROM system in the Domesday project. It contains over 50000 sti frame pictures with complete map coverage of the Great Britain at 1 : 50,000 scale, text, moving film sequence and sound. Some encyclopedias such as Grolliers Academic American Encyclopedia (21 vols), McGraw Hill Encyclopedia of Science and Technology (1987 edition) (20 vols) and other publications with large volume of data are being published on CDROM.

We have now seen how the book has travelled from clay tablet (CT) to compact disc (CD) every time adding new features. After the invention of microforms the printed book continued side by side. The extinction of the printed book cannot be visualised in the near future. The conventional book will survive the onslaughts of the electronic media. All these new electronic media require intermediate equipment for reading which causes strain to the eyes if read for longer periods. The book on the other hand is convenient to read without any equipment (except spectacles for some people). It can be read in arm chair, bed or in journey, and several books can be used simultaneously and compared. The most important factor in favour of the printed book is the convenience in reading.

From the point of usage the books may be broadly categorised into three types i.e. entertainment, reference and educational. The entertainment part may be best covered by video/television, while the reference publications (encyclopedias, handbooks, journals, etc.) by computerised databases and the educational publications specially textbooks and light reading material may continue to be in printed form.

In the developing countries where literacy is one of the most essential requirements in the national development, low-cost educational material will be needed on a large scale. There is no dispute about the role of television network in the spread of education, but the importance of printed material for the classroom and for reading in leisure cannot be taken lightly.

Future

The printed book is not going to vanish in the near future. It is going to stay. It may not be necessary to print the book through the conventional letter press when more modern systems for computer-based composing, offset printing and desk-top publishing are available, which will reduce the cost of book production and improve its quality. □

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THE FUTURE OF THE BOOK

T.K.S. Iyengar*

Introduction

The automated library, individually profiled journals delivered electronically on demand, word processing, SDI-profiling, key-wording, multiplexing, telefacsimile devices, cable television, electronic : mail, speech synthesis, artificial intelligence, interactive videodisk systems, automated translations, online access thru satellites, holographic media and robotics have all come. All of these innovations share in common, a technology centred around the computer and telecommunications industries and their abilities to provide communication through media other than print or paper.

Whatever happened to that paperless Society wherein several forecasts made that it would evolve during this decade ? Certainly, Desktop computers have become more powerful, and useful, less costly, and more widely used. Inspite of these the paperless society has not come about. On the contrary, paper consumption has increased because most people still want to view and distribute computer-generated information on a hard copy. The traditional view that paper is an ideal medium for working with and transporting information still prevails. In the following pages an attempt is made to focus attention on future of the book and its survival despite the onslaught of the electronic media.

Development of Electronic Media

The rapid developments in the fields of electronics and telecommunications have changed already, and will change more, the way in which information will be generated, stored, distributed and used. The availability of relatively cheap electronic equipment for producing and consuming information, like word processing and type setting equipment, microcomputers, viditext, and the like and at the moment—more expensive ones like videodisk, will not only influence the way people get their information, but also the daily operations at the work floor and the Library. Library workers will have to learn to use the new tools, how to integrate them into their work, how to benefit from them. They will be confronted with user (un) friendliness of hardware and software, with (the lack of) standardisation in these areas, cost/benefit analysis of what they buy and the problem of choice which software on which machine with which information will best suit their short term needs, how does this choice fit in to the still going on new developments ? An immense task in the field educating people of these new tasks lies open.

While it is impossible to deal with the entire range of electronic media products, the following few may be considered as representative samples and they are briefly described here : optical storage; Data on Diskette/CD-ROM; Printing and Publishing Technologies; Desktop publishing; Electronic Composition and Micropublishing,

Optical Storage

The last two years have shown a tremendous development in the technologies of optical storage. A tidal wave of publications exists on these matters and the unsuspecting reader is likely to be baffled by the terminology in use—DRAW, WORM, CD-ROM, laser disk, etc. Are these mere slogans or do they really mean something ? Here is given a brief review of the current technology and then to concentrate on the possible uses of CD-ROM in libraries and documentation centres with some emphasis on those in developing countries. The future CD-ROM may even eliminate on-line access. We can forget about satellites and telecommunications when laser written CD-ROM database on silver diskettes are available.

Optical media can be divided into two main Classes : Digital and Analog. Further, there are three sub-classes for each main class : read only, write-once and erasable. With these distinctions every sort of optical medium can be classified as follows :

(a) **Read only Analog Disk** : These media, frequently called laser videodisks, are as such the oldest form of optical storage. The most common use of these disks is in the home-video market, although there are some sophisticated professional applications. An

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**Librarian, Indian Institute of Science, Bangalore.*

example of the latter are the products of Laser-Data, which are published by companies such as Information Access Company, Bowker, LSSI etc.

(b) **Read only Digital Disks** : The best known example of this kind of disk is the compact Disk (DC), already well penetrated in the home audio market and now starting to become a candidate for mass storage of digital data (Compact Disk Read only Memory, CD-ROM).

(c) **Write once Analog Disks** : These disks are currently only used by products of video disks for mastering purposes, and are therefore irrelevant within the present context.

(d) **Write once Digital Disks** : These are disks which are often called by ominous names such as WORM or DRAW (write once Read many and Direct Read After Write) or ODDD (Optical Digital Data Disks).

(e) **Erasable Disks** : At the moment there are no commercial applications of erasable disks, although the industry is working hard to conceive the product. The predictions are that in about three years time they will be on the market. In contrast to the media mentioned so far, the erasable disk makes use of a form of a magnetic storage of informations; laser raises the temperature in the magnetic layer, thus changing the reflection.

Applications of CD-ROM in Libraries and Documentation/Information

Several applications of CD-ROM technology are on the market, and more are being developed or are in a test phase. Many applications are notably in the area of (bibliographic) databases. To give the reader an idea a short list of such applications is presented here.

Datexy produces a corporate information database. Digital Equipment Corporation (DEC) has brought several databases on the market (subsets of compendex, such as, aerospace engineering, electrical and computer engineering, chemical engineering; subsets of NTIS, such as, computers, communications and electronics; environmental health and safety etc.).

Silver platter, a well known company in this field produces psyclit, Eric, Pais, Embase, LISA etc.

Library Corporation has introduced bibliofile, a MARC—database with 1,400,000 records for catalogue-production.

Access Innovations together with Silver Platter introduced the NICEM-database (National Information Centre for Educational media), now known as A. V. online.

Whitaker has a test copy of British Books in print ready.

Derwent, together with the French company DARC have submitted a proposal for a database of chemical formulas on CD-ROM to the EEC.

The examples mentioned above are clearly in the field of database publishing. The list can be extended without effort to a much longer one, and now projects are being announced every month.

The application of Brodart Corporation is of a completely different nature. They have developed an online public catalogue which can be easily consulted with the aid of a 10-function keyboard.

Of course, a patriarch of the CD-ROM applications also exists : the Grolier Encyclopaedia. Very recently Sanshusha Publishing Company in Tokyo produced a dictionary of Science and Technology on CD-ROM in the Japanese, German and English languages.

Economic Viability of CD-ROM Applications

On the face of it CD-ROM seems to have made it. Nevertheless one can have doubts as to whether the above mentioned examples are economically viable for the library and information market. After a closer and careful look at what they really offer by way of their usefulness, it can safely be concluded that the CD-ROM is only suitable for larger libraries with a fairly healthy budget though it is obvious that the Lepac option could be a very serious competitor for the traditional COM-catalogue.

CD-ROM Vs Future of Book

What are the advantages of databases on CD-ROM for libraries and documentation information centres ? By the look of it : not many. The information presented is incomplete, because it is confined to a restricted field of Science and to a couple of years of publications, always missing initial investment in hardware amounts to several thousands of dollars. In short one has to conclude that CD-ROM is a freak of fashion.

However there are some reasonable applications in combination with online access, as opposed to instead of online access.

A library that performs many searches on online databases has the opportunity to prepare the online search with the aid of a CD-ROM version. In that way there are no communication-costs. If the search with the profile can be edited and stored the 'real' database can be searched online with this profile. The result : a very short, and therefore cheap search with fairly good results. A thorough cost-analysis will establish if this kind of application would be profitable for the institution. The online public access catalogue will also require a very thorough cost benefit analysis.

The other applications such as the encyclopaedia and the dictionary are not so subject to time. Such publications do not demand revision every month.

Data on Diskette

Commercially available data on diskette has become available only in the past few years. It does not appear to be used widely and may be used only as a temporary alternative between the current choice of online access by time-sharing or the future choices of laser disks. At present, duskettes provide useful alternative for database access.

For most of us, "online searching" is synonymous with accessing remote databases through time sharing systems. Our definition of searching is being broadened by improvements in data storage and the availability of microcomputers. Laser disks now allow us to store large databases locally without the problems associated with maintaining files of byte size. But commercial laser disk systems are still exceptional and expensive. As we wait for laser disk technology to mature, a familiar storage medium, the microcomputer diskette, will allow us to experiment with maintaining and searching commercial databases in house.

Commercial databases in diskette format have a number of advantages over the traditional dial up access format. These advantages include :

* Elimination of connect costs of time sharing systems.

* Accompanying software that allows extensive manipulation of the data or are designed to run with standard spread sheet and database management programs.

* Ability to purchase multiple copies for a nominal cost or make additional copies through licensing agreements. Multiple copies allow the data to be distributed to users.

* Database segmentation or taking a piece from a larger database. This reduces the need to down load information through dial-up systems.

Their disadvantages include :

* Limited storage capacity of the diskettes. The double sided IBMPC diskette, for example, holds about 350,000 bytes (roughly 100 typewritten pages). Of course, multiple diskettes can be loaded on to microcomputer hard disks.

* The need for IBM compatible microcomputers since most data on diskette is only for IBM equipment.

Desktop Publishing

Desktop publishing is a phrase coined by Paul Brainered of Aldus Corporation, publishers of Page Maker, the best selling page layout program for personal computers. A desktop publishing system consists of a personal computer using a program that allows you to display text and graphics elements on the screen, edit and move the different elements around, and print them out on a dot-matrix or laser printer. Most systems make use of laser printers, hard disks, and some use special scanners that convert drawings and photographs into digitally stored immages that can be incorporated in the document. The final print out is used as a camera-ready master for duplication. Some graphics shops use the laser output as a proof sheet before the master is type set on a Linotronic or other typesetting machine. Because the results are so impressive and comprehensible to computer novices and experts, this application has given rise to a new market for the computer industry.

Nobody talks much more about the paperless society, even with the increased use of computers. Printed material is still the most common means of communications for many organisations. You and your library will be judged by the reader of each brochure, letter, or memo, exclusive of content.

Librarians know the substance is not lacking in what they publish, but sometimes the form needs more enhancement. If you want to be remembered in a positive way, you can't send out an important report printed on a dot matrix machine. Until this year daisy wheel printer was acceptable, but now the ente has been raised; people expect laser output for quality work. If you print down loads from sessions in draft format, consider the impression the same material will make if it looks typeset. An expensive report from a consultant carries more weight if produced on a laser printer. It is not claimed that it will take less time to write than a document produced the old way, but it will print more quickly and have more impact on your client, or the reading public.

Micropublishing—Microfilm/Microfische Technology

Changes in publishing methods were foreshadowed by the promoters of the project Intrex at the Massachusetts Institute of Technology. In all probability the major publishers will be able to supply copies of most of their publications in Microform and it is highly likely that this form will replace book acquisitions. They also predicted that journal publishers would publish reprints of articles using the microfiche medium. Libraries, it was thought, would buy these microform reprints only of the articles they wanted and would not continue to bind and retain complete volumes of learned journals. Hardware Microfilm/Microfische readers are available. This has to be related to users psychology.

Fascimile transmission online, based on computer access to micro-form, would be the norm. Obviously we have gone only some of the way along with this route. No economical method has been found to interconnect machine based library systems so as to provide guaranteed rapid access to the full text of documents by electronic means. There are some monograph publications available in printed paper formats with microfiche editions as the alternative. Secondly, some new publications appear only in microform. Thirdly, some reprints appear only in microform. Fourthly, there are some periodicals available at choice in microfiche or paper. Fifthly, there are journals with the full text available only on microfiche. Finally, there are online services retrieving from abstracts in computer storage and some of these have source document capability retrieving from microfiche storage. If we look at each category of micro publications to be found in libraries, we can discuss the merits of each for particular purposes. Yet the print media remains.

Impediments in the Use of Electronic Media Products

Technology diffusion may be hampered by more than one factor : industrial secrecy, military secrecy and the high cost of technology acquisition are wel known factors. New design and production ideas developed in small firms may remain unknown—except in a small circle because the entrepreneurs, especially in developing countries, may not have the experience, or the whereto promote and disseminate the know-how Users of technology regardless of their geographica location, level of development, and particular needs are often found to be unaware of the existence and/or the value of technological knowledge that can be of practical use. This may be partly due to the inadequacy of the information handling systems and partly due to the potential users not being adequately prepared to make the best use of the system and services. And often users lack confidence in the technological information systems, sources and services.

The technological information services available suffer from the exclusiveness in that it may be largely oriented to meet the needs of the elite group of Academic specialists or those using sophisticated or capita intensive technology, etc., leaving out the needs of th rural/urban poor of developing countries. This facto becomes all the more important in the context of th current reorientation of development programmes to the disadvantaged sections of the society.

A worrying feature of the current scene is that wor on programmes and data resulting from computer activities in different institutions are not, in many instances, compatible. The need for standardizatio commands urgent attention. It is unlikely that our wel established book holdings and printed records will b profoundly affected in a short time.

Indian Scenario

Like many other countries and regions of the world India is also experiencing profound change in its scientific, industrial and cultural life as a result of the introduction of the computer and related informatio technologies.

Right from the very beginning modern technolog seems to have been developed for the developin countries. In most cases the technology is only used i the developing countries after a few years, unfortunately often in the form of 'castoffs'. For this reason seems necessary to pay some attention to the potentia advantages of CD-ROM for developing countries. CD

ROM will be highly effective especially in a country ike India. Why aren't our computer manufacturers/PC abricators bring in this technology? What all we need s a disc drive suited for CD-ROM optical discs. So many databases are available in CD-ROM silver platten laser discs. We can cut down cost of telecommunication links of accessing these databases for which CD-ROM discs are available. Why should we invest money on getting SDI-Tapes when they are available on CD-ROM? Institutions such as NISSAT, UGC should do some rethinking on this. Online access, that too dedicated line, is very costly for our country. When the same is available in CD-ROM. Sometimes one gets a feeling that what we do in Indian Information Science is academic exercise only and not service oriented.

Taking a necessarily broad view of the problems facing developing countries in the field of information technology, the following list will be applicable.

(a) Infrastructural problems, such as, lack of good communication facilities; a badly working telephone network, no access to satellite communication etc., even if we want to.

(b) A shortage of skilled labour, in the traditional fields of library and documentation as well as in the field of computers and telematics; no suitable storing facilities for documented information. Lack of coordination between Computer Scientists and Librarians. In other words, more hardware oriented computer specialists would like to take up library jobs.

Information Needs of Developing Countries

D.M. Davies in an excellent article deals with the phenomenon of appropriate information technology. He says amongst other things that developing countries do not have a need for access to the large database from the developed world because the local literature production is not incorporated in these databases and the language in use is not the language of the country itself.

Many projects on information, including in developing countries, have failed because the technology was not adopted to the needs and possibilities of the country. There are however possibilities to introduce modern technology in developing countries provided.

1. It is based on the true needs of the country.
2. It is built from the bottom upwards, which means concentrated on what is available in the right language and there are trained personnel available.

If the picture sketched in the preceding paragraphs is matched to the CD-ROM technology the only conclusion that can be drawn is that developing countries, in particular have to be very careful in introducing this technology, not only because of the costs involved but especially because of the information contents of the products announced so far. There are, of course, possibilities regarding local database production and distribution (*cf.* the Lepac-option of Brodart). A very thorough cost benefit analysis has nevertheless to be made.

It would therefore be a very sensible step if within the framework of UNISIST, one or more trial projects would be set up to test the capabilities of this technology for the developing countries. Only in this way can the true merits of the CD-ROM technology be tested objectively.

On the Survival of the Book

Since at present the printed book can reach a large audience, far larger than any of the new technologies, perhaps this is a good and legitimate use of the printed word. It is difficult not to be sympathetic to this defence. It is not an argument whether to use candles or electricity. It is estimated that over 90% of the capacity for generating, communicating and utilizing information and knowledge, especially in the fields of science and technology, rests with a small number of technologically and industrially advanced countries (some 30 countries with over dollar 8000 per capita income and sharing 35% of the world population burden) and, therefore, developing countries (about 20 countries with less than dollar 500 per capita income and sharing over 60% of the world population burden) have to purchase the knowledge and know-how in the form of books, periodicals, reports, patents, training, expertise and commodity imports : that is, Third World countries have operated at no less a disadvantage even in terms of the traditional information system. It might equally be argued that with the growth of satellite communications this planet will be more equitably spanned.

It has to be noted that the technology and applications of CD-ROM are still in their infancy though the child is growing rapidly and is clothed more and more in ready-to-wear garments. The problems arising from the many incompatible formats of video-tapes and recorders are being avoided in the field of CD-ROM through the energetic standardization activities of the parties involved. Compatibility seems to be warranted. A price decrease might be a result, though it is not very likely in the first two years.

Libraries and Information/Documentation Centres need to be very careful, however, in embracing this new technology. Profound investigations into the relative costs and benefits should be carried out before any decision has to be made. Let us look at the following table :

The Book	Computer Data Bases
1. Relatively low density of data storage.	1. Higher density of data storage.
2. Very portable except in large numbers.	2. Portable, but needs careful handling.
3. Will survive most environments, although life depends on quality of paper, binding, etc.	3. Subject to deterioration and even erasure in some environments.
4. Can be read without intermediate equipment (except spectacles).	4. Needs additional equipment to convert to format suitable for human reading
5. Can be read in an armchair, a desk, in the bed, or wherever convenient.	5. Ease of reading depends on this equipment and its accessibility. Reading must be conducted in an upright sitting position at the computer terminal unless printed text is generated. Computer terminals must be connected to other equipment and are not generally regarded as portable comparing two or more data-bases or parts thereof, the mains flicking between two sets of text on the screen.
6. Several can be used simultaneously and compared.	6. The ease with which this can be accomplished depends on the system.
7. Can be scanned in order to judge whatever is covered in the following few pages, and to review the plan of the book.	7. Additional terminals would naturally facilitate readier comparison. Scanning is possible, but usually must be sequential and thus can be slow.
8. Diagrams and illustrations can be used to amplify and elucidate points.	8. Diagrams are sometimes available with graphic facilities, but picture cannot be faithfully reproduced.
9. Can be a work of art, with both a tactile and visual appeal.	9. Computer terminals are distinctly limited in this respect. All efforts at improving display of text are rooted in functionality.

Also, there has been relatively little progress in the areas of statistical and linguistic analysis of natural languages for meaning. There have been some advances in automatic indexing but there are no theoretical structures formulated yet characterising words and their interaction with context to the extent that parapharasing may be computed. Computers are not yet equipped to deal with meaning. Now then, what do we do when scripts of several languages are involved. Software technologists have to do this home work rather than writing books on programming.

Conclusion

The literature generally reflects the conclusion that conversion to paperless systems will require society to be more resilient. Has computerization produced a new vulnerability for society? And are individual members of society able to absorb large disruptions without grave and lasting societal consequences ? The answer to this question is that modern societies, at least the United States, appear to be resilient and adaptable to the new technologies. Hence the electronic media at least for the present may not be suitable to developing countries, especially India.

Specification for an ideal information storage and retrieval device —it should be portable, able to function in any environment, require no power supply and be immediately usable with no warm-up; it should have high information storage capacity and retain the information indefinitely without degradation or possibility of accidental erasure; file access should be instant and random and it should be possible to mark up, annotate or make manual corrections to text.

There is no electronic media which meets this specification, nor is there likely to be in the foreseeable future. On the other hand, there is a non-electric device which fully meets the specification and has done so far over 500 years, since the invention of printing, that is, of course, the book. ☐

LIBRARY OF THE FUTURE

S.M. Dhawan*

Presently libraries are passing through an exciting phase of transformation under the impact of information technology. The machine readable databases, online retrieval, microforms, amazing storage capacities of CD-ROM disks, etc. are some of the key contributions which have had their impact on library services. Libraries in UK, USA, etc. are adopting new technologies for developing information dissemination systems, and providing services unimaginable, impractical in the past. Although the impact of new technology is not seen as much in India, the libraries are in for a change and cannot escape its onslaughts. If the trend continues what kind of transformation will it bring about in the decades ahead. Whether electronic publishing will replace the book, whether machine readable databases will replace abstracting services, whether libraries would still exist as warehouses or become active information centres, or what changes will new technology bring about in users' information seeking behaviour. These and many more such questions are boggling the professionals, planners, and thinkers in the field.

In order to visualise the future of the library let us first look into the applications of information technology, viz., computers, telecommunications, micrographics, and reprographics to the library field.

Online Services

Online information retrieval systems, which first came into existence around 1970 with the introduction of RECON (Remote Control) system by NASA (National Aerospace Scientific Agency) in USA, demonstrate the tremendous potential computers hold for libraries. Retrieval through computerised databases, the counterparts of abstracting and indexing services, had proved so useful that within a span of 10 years the number of databases rose to 400 and of online service including RECON to 59. By 1987 the total number of databases is estimated at 3369 and of online services to 528. Online database industry owes this fast growth to advantages inherent to online retrieval systems. They are tremendously fast. Computers have the capacity to search relevant information from a large store of bibliographic data in seconds. They eliminate physical handling of bulky volumes of printed abstracting and indexing services and also eliminate the labour of personally visiting the library many times. A computer search is more comprehensive and accurate. Computers provide more access points than the corresponding abstracting services in print format. The retrieval software provide boolean logic facility which is unique to computer systems and unimaginable in a manual search approach. It is useful in improving precision and recall in information retrieval. Online services allow users to retrieve information from remote terminals however far they may be located from the central processor. The printouts are neatly produced according to desired format without errors which normally occur in reproducing references manually. It is a lot cheaper to obtain information online services than assembling libraries from a scratch.

Networks

Advances in telecommunications have opened up entirely new vistas in information dissemination. The mix of satellite and computer technologies have produced communication networks which have made long distance communication, across countries, a reality. The most commonly used networks are ESANET, EURONET, TYMENET, and TELENET. There are still many more. It is through such networks that communication link is established between online vendors such as DIALOG, BRS, ESA/IRS and the remote terminals located across different countries. Broadcast transmission has added yet another dimension to information dissemination by introducing teletext services whereby text and graphics stored in a computer database are displayed on television screen. The information is broadcast on television channels. But it is only one-way communication intended for wide public use, carrying information of broad public interest. Its typical examples are Teletext (India), Ceefax (UK), Oracle (UK). Using telephone lines

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interactive information service, called videotax, has also been introduced successfully. Like teletext, videotex also shares a common database but it is much wider in scope and volume. A user gets connected to the computer database on his telephone line. Unlike teletext he can call any page on his television screen. A typical example of videotex is Prestel (UK). It contains vast amount of information on topics ranging from business interests, tourism, travel, weather, governmental information to recipies. Prestel also has a 'Gateway' system which puts a user in touch with external databases using its Prestel terminal.

Electronic Publishing

The information technology has also affected the publishing industry. The publishers have started using computer-based-text processors for editing and producing camera-ready copies in order to bring about efficiency and quality in their productivity. But these developments pertain to paper based publishing industry in which paper is the prime medium of message. However information technology has provided an alternative to printing the text. It is now held as computerised data and distributed as electronic mail. Would-be-user views the text on a VDU and takes out a printout, if necessary, on a local printing device attached to the VDU. Input to, and output from an electronic mail can be also from word processor or facsimile machine. However the transmission of electronic mail requires a telecommunication network. Videotex is also a form of electronic publishing because it allows a user to retrieve information from 'electronic reference book' which otherwise is known as computerised database. Even the databases such as INSPEC, NTIS, COMPENDEX, CA SEARCH are considered as the electronic abstracting journals of Science Abstracts, GRA & I, Engineering Index, Chemical Abstracts respectively. Instead of reading a page here the user retrieves a particular reference using the retrieval software.

Microforms

In addition to micropublishing media (the combination of computer, telecommunication and display technologies) progress is being made in the use of two other media for publishing as well as information storage : microforms, and video tapes and discs. Microforms offer a convenient method of storage, retrieval, and display of images recorded on microfilm or microfiche. A 6" x 4" microfiche card can store 60 to 13000 images depending upon the reduction ratio deployed. They provide the much needed answer for storage problem. Video tape and video disc are also compact storage media. A vedio disc is such a compact storage medium that two copies of the entire Encyclopedia Brittanica (44-million-word text) can be stored on one $5\frac{1}{4}$" disc. It offers a totally new capability for users of small personal computers to have personal ownership, direct access, and control of massive databases.

Document Delivery

Information technology has been applied to document delivery. Documents are distributed either as electrically coded images, as computer print-outs, or as computer produced microfilm. The distribution of documents on paper is aided by high quality, fast xerox machines. The electronic methods use telex, teletex, facsimile transmission.

Library of Tomorrow

It may be observed that information technology offers new ways to store information compactly (examples are magnetic storage, microforms, video discs); new facilities for rapid transmission over long distances (examples are TYMNET, TELENET); and new capacities for manipulation of data on computers. Declining costs of computer hardwares and proliferation in softwares are increasingly making computer technology within the reach of small libraries. Comparing with the past we find that libraries are now better equipped to organise, manage information systems, to overcome storage problems, geographical and language barriers to communication, problems of information scatter, multidisciplinary nature of information, information explosion and information overload. Obviously information technology has contributed a great deal to libraries. One may also conclude that library development is linked to developments in industry, and library future will therefore depend upon new strides coming forth in information technology.

Basically transformations in library functioning are anticipated in following areas :

—media of message communication ;

—technical information processing ;

—information dissemination ;

—compact storage devics ;

—new management approaches such as organising library systems, information dissemination systems, coordination and cooperation in sharing resources ;

—faster document delivery systems;
—new focus in library education;
—new library building designs;
—new user approaches to seeking using information;
—new preservation activities.

Lancaster had predicted "we are already close to the day in which great science library could exist in a space less than 10 feet square". Dr. Raj Reddy in his convocation address at IIT Bombay visualised the possibility' of an 'electronic library' where it would be possible for anyone, anywhere in the world, to reach and read any document at a cost less than a cup of coffee. Does that mean that the book in print format will disappear ? Deniel J. Boorstin, Librarian, Library of Congress discussed this issue in his report 'Books in Our Future'. Examining the new trends he concluded that "technology is not a threat to the book" but cautioned that "we must enlist new technologies with cautious enthusiasm". Continuing further he warned that it would be fatal to take, extract, remove book from our lives. But luckily it is impossible because of enormous investments which libraries, institutions, and individuals have made in books. The basic characteristics of books offer even more compelling reasons to expect the book to remain a "fertile resource" in the decades ahead. The convenience of book, its independence of outside power sources, its unique individualism, its mobility, and exportability are not likely to be replaced. If electronic publishing and electronic mail systems have threatened the existence of book in print format, computerised databases have threatened the existence of secondary journals. A study conducted for the International Council of Science Unions—Abstracting Board (ICSU/AB) in this regard concluded that online services have so far had negligible effect on sales of print products but there is a great uncertainty about the possible impact in next five to ten years. National Federation of Abstracting & Indexing services (NFAIS) was equally concerned about the future of abstracting services. It reported in its study a decline in the subscriptions of printed products of abstracting services, but observed that this decline is not due solely and primarily to the availability of parallel online databases but to many economic factors. It points out that print and online services have independent markets and there is no couse-effect relationship between the two as it normally appears to be. One may conclude that printed products of secondary journals would have a place in future. Even going by the past experience one may also draw the same conclusion because new technologies have generally served to facilitate our life, change our life style, but they hardly replaced the existing ones. For example microfilm did not repla ce printing; telephone and telegraph did not replace personal communication; typewriter did not eliminate handwriting; the railway, the car, the aeroplane did not supersede the human technology of moving around.

A new style of library functioning is therefore percieved. Inhouse library functions and procedures will be performed on computers; the card catalogues replaced by database; more retrieval from online services; greater emphasis on coordination and cooperation between libraries; growth in conceptual and communication networks; greater use of library resources; greater capacities for meeting user demands; greater clientele; better, effective and efficient services. Library collection would be a mix of printed products, video products, computer files, and microform products; greater emphasis on acquiring, using, sharing, storing documents on microfilms, videoforms. Library education would have revised curriculum, more emphasis on new technologies, new skills. Above all, the profession would gain respect, recognition, and due place in society. Emphasis in professional duties and responsibilities would shift to online searching; assisting users in the exploitation of information resources; more of document delivery; developing databases for local materials; selecting and indexing portions of literature from a highly specific point of view; improving intellectual accessibility of information resources; assisting, developing, promoting conceptual networks for resource sharing; advising on databases, indexing policies, procedures, vocabularies, searching strategies, etc. Computerised databases would become useful tools for research in bibliometrics, scientometrics, literature analysis.

In addition to printed products, video products, microform products, the library of tomorrow would possess equipment and devices such as computers, online terminals, teletex machines, fax machines, video players and display systems, microfilm reader-printers, photocopiers. It would command interactive communication facilities for transmission of data, text, graphics.

In a nutshell, new technologies will add on new facilities, and the existing ones would also continue. It is the user who will decide which facilities would flourish more than the others.

The library of tomorrow would become an information center in true sense and its guiding principle would be "information (and not the book) is for use". ☐

BIRLA INSTITUTE OF TECHNOLOGY

MESRA : RANCHI

ADMISSIONS—1988—M.B.A. (2-Yr. Full-time & 3-Yr. Part-time)
M.C.A. (3-Yr. Full-time & 4½ -Yr. Part-time)
Post-Graduate Degree Course

Applications are invited for admission to the following Post-graduate Degree programmes for the academic session commencing August 1988.

(i) M.B A.—(Master of Business Administration)
2-Year Full-time Course and 3-Year Part-time Course.

(ii) M.C.A.—(Master of Computer Applications)
3-Year Full-time Course and 4½-Year Part-time Course.

Admissions will be made through an Entrance Examination which will be held on Sunday, May 29, 1988 at 9.00 a.m. to 11.00 a.m. for M.C.A. and 1.00 p.m. to 3.00 p m. for M.B.A. at the following Centres :

Allahabad, Agra, Bhagalpur, Bhopal, Bhubaneshwar, Bangalore, Bombay, Calcutta, Chandigarh, Delhi, Gauhati, Ghaziabad, Gorakhpur, Hyderabad, Jamshedpur, Jaipur, Lucknow, Madras, Muzaffarpur, Patna, Ranchi, Sindri, Trivandrum and Vijayawada.

Centre for PART-TIME Course will be at Ranchi only.

Eligibility

(i) For M.B.A. (2-Yr. Full-time) course : University Degree with atleast 50% aggregate marks in Arts/Science/Commerce and 60% marks for graduate in Engineering/Technology/Agriculture.
(ii) For M.B.A. (3-Yr. Part-time) course : Same as of (i) above and further the candidate must have two years experience in supervisory capacity in any firm or organisation of repute.
(iii) For M.C.A. (3-Year Full-time) course : University Degree with atleast 50% aggregate marks, with Maths, or Statistics as one of the subjects at the Degree level.
(iv) For M.C.A. (4½-Year Part-time) course : Same as of (iii) above, and further the candidate must have two years experience as executive in any firm or organisation of repute.

22½% seats are reserved for SC/ST candidates.

Those appearing at the various qualifying examinations are eligible. The selected candidates will, however, be required to produce the qualifying examination result by the end of August, 1988.

Application forms can be obtained by post on pre-payment of Rs. 25/- only by crossed Postal Order, payable to the Registrar, Birla Institute of Technology, Mesra, Ranchi. The request should accompany a self-addressed envelope of size 26 x 12 cm. affixed with postage stamps of Rs. 1.80 paise, clearly mentioning the form required i.e. MBA or MCA—as the case may be.

The last date for receipt of completed application form is **April 10, 1988**.

B.I.T., Mesra, Ranchi-835215
Dated : January 19, 1988

J.B. Saksena
REGISTRAR & OSD

LIBRARY OF THE FUTURE

A POINT OF VIEW

Sewa Singh*

Introduction

To try to make prediction is quite an unrewarding activity, hence waste of time, but at the same time, it is difficult to resist the temptation too. Having accepted the invitation to speculate on the appearance of library of the future, an attempt is made in the following paragraphs to peep into the years to come, though fully aware that the likelihood of its being wrong may be greater. This is because we base our prognostications on the past, which is otherwise considered to be prologue to future, but past itself being imperfect and incomplete not much of the future activities can be based upon past.

Impact of Technology on Libraries

It is an acknowledged fact that the new technology has already had its impact, *inter-alia*, on libraries in the western world. They are becoming more and more information-conscious society where information is regarded as a powerful resource.

As a result of extensive computer application in almost every human endeavour, the American librarians visualise 'library-in-a-desk' and the 'paperless information system'. According to Taylor, the time is not far off when, with further technological developments, the traditional concept of the library will 'wither away, their historic duties done'. Now these are very bold predictions. One might immediately conclude that by the turn of the century in the year 2000 the libraries and librarians will be completely redundant. Lancaster, however, believes that this will be possible because online terminals are increasingly being used in the libraries. The users are also, particularly in the west, buying their own terminals and they will not have to come to the library of tomorrow physically. He feels that the library may be by-passed as an institution and may remain only as archive of the printed records of the past.

Many libraries in the western world have already introduced computers and automated some of their house-keeping jobs such as cataloguing, serials, circulation, acquisitions, etc.; some are in the process of automating these operations : while many are taking into account the socio-economic considerations and feel that incentive for change must come from the users. Nevertheless, there is no denying the fact that they have gone a long way in this direction.

They have already produced substitutes of the conventional book, that is, new form of documents such as microfilm, microcard, microfiche, etc. These collectively are known as microform publications.

The computer and the other like-machines have relieved the librarians of the routine jobs like preparation of the order letter, issuing reminder, issuing chaser, etc. which consume lot of time when prepared manually. The computers have obviously saved that much time which could well be utilised for intellectual jobs.

Thus the tools of the new technology such as word processors, mini and micro-computers, very large scale computers, have displayed great potentialities in fast storage and retrieval of information. These have revolutionised the concept of storage of information during the last 20 years or so and are proving a boon to the librarians in reducing the pressure of space which has been a major problem. This is, however, necessitated by the changing information scenario where the users need information quickly for immediate consumption.

Another major impact of the new technology has been in the area of information transfer. Here, communication technology has great potentialities and it has achieved impressive results in recent years. Further, satellites can also be used for the fast transfer of information from one end to the other. Many computer-based document delivery systems have also been developed for quick supply. The online bibliographic databases have further enhanced the possibilities of quick and easy access to the documents. Through online searches the concept of universal resource sharing has become a reality. The libraries now need not acquire everything, they can rather, through the

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computer network, depend upon the resources of other libraries.

Similarly, there are non-interactive systems through which information could be transferred to the VDU or the television screen.

Meanwhile, electronic databases have also been developed all over the world. So much so that some databases have also been developed especially for libraries which can either be searched by the librarian or the user. We can therefore agree with Lewis that 'librarianship of the databases is coming'.

Another major development of the new technology is the 'electronic journal' and other 'electronic publications'. The printing industry is already adapting to changing technology. By making use of microfiche synoptic journal publishing is becoming popular which gives only synopsis or extended abstracts of scientific articles. Microform publications have become commonplace. In future, however, authors, particularly in S & T, can send their text directly through their PC or the terminal to the publisher; and time will not be far off when electronic dissemination of information could be made possible. The Third Wave of Alvin Toffler thus begins a truly new era—the age of the de-massified media as described above. So both generation and dissemination of information electronically will usher in the 'paperless information system' in the society of tomorrow.

Changing Face of the Libraries

As a result of the application and transfer of new technology to the libraries, there will be a total face-lifting. The computer and other technology is not being applied as an end but as a useful means to provide more efficient and effective services and enhance the credibility of libraries among the users. In the years to come there is likely to be a more demanding and much more knowledgeable body of users. They would be more information-conscious. The computer will be used not as panacea, but as a tool for quick retrieval and supply of information not only from the sources of one's own library, but also from a neighbouring library. Here, computer networking will come to the aid of librarian as well as user. He can even enter into a dialogue through his terminal with the computerised information system of the library and ask for any information he is interested in to be displayed on the screen of his terminal.

The library of the future will have in its store talking books, sound recordings, video cassettes, films, floppy discs, microfiche, microcards, biochips, etc. The catalogue of these libraries might be stored on optical disc. The librarians of tomorrow would provide information on how to use collections by tape recordings and voice synthesisers. The stacks will not be manned by the attendants, rather by Robots who would collect and reshelve materials on the stacks. Robots might also be put in the circulation section for issue and return of the documents. They might even serve as janitors and control the entry and exit points.

These would change the face of the library of the future completely as it would be transformed into an electronic library. In such a library the users might not be received with the mysterious 'Mona Lisa' smile; they would instead feel the cold of the machines all around.

Library Scene in India

During the last 40 years the total population of academic, public, and scientific and technical libraries has increased rapidly. There are about 160 university libraries, about 5600 college libraries, hundreds of public libraries, and the number of scientific and technical libraries is also reasonably good. They are also following modern library techniques in order to give better library services to their clients.

The Indian librarians have also started to catch up with the new technologies. The use of computers and other electronic gadgets in some scientific and technical libraries is being attempted. Such organisations as BHEL, INSDOC, BARC, DRTC, NAL, SENDOC, NISSAT, SAIL, TISCO, etc. are making use of computer technology. Some of them are also collaborating with international organisations for creating their own databases.

The reprographic technology has already made a big impact in information transfer and document delivery system. Most of the S & T libraries and university libraries possess reprographic equipments and supply photocopies of any document to the users.

Many S & T libraries have gone a long way from the traditional services to the latest services in the form of computerised bibliographic services like CAS, SDI, etc. Some of these libraries have been automated a couple of their house-keeping jobs like circulation control, serials control, acquisition, production of current awareness. services etc.

INDONET is already there and the National Information Centre is to develop ASIANET soon. The potentialities of INSAT-1B are also being planned to be reaped for improving the computer networking.

Limitations

There are some obvious limitations in spite of the picture as portrayed above. These are : (i) insufficient manpower to handle the new situation and new environment in the libraries. Library and Information Science education in India though changing, is not upto the mark regarding the imparting of knowledge about new information storage and retrieval techniques; (ii) lack of computer culture, and even lack of library culture. Without developing satisfactory library culture, a computer culture can not be evolved; (iii) we also have financial constraints. There are costs of installation, providing terminals and peripherals, cabling, air-conditioning, maintenance, materials, and so on.

But this is not going to stay for ever. In future times, skilled manpower will be made available. Library culture and computer culture can also be created and developed so as to make the library a catalyst of social and technological change. We have already borrowed and adopted such American cultural symbols like the jeans, bubblegum, discotheque, rock 'n roll music, fast food, aerobics, etc. This indicates that no matter how the traditionalists try, there is no stopping the tidal wave of this kind of western culture.

Conclusion

Indian librarians are also not averse to the change and the impact of computer technology, etc. on libraries. The fact that they are thinking and talking of new technology indicates some change in attitudes. They really want to equip their libraries with modern equipments, the boon of new technologies. And quite recently, the Indian Library Association for its 33rd All India Library Conference had fixed "Modernisation in Libraries" as the theme for the Seminar, which amply demonstrates the need of the hour. As we prepare ourselves to be ushered into the new century we need to give new shape, new look to the services in the libraries of the future in the light of the techniques heralded by advances in new technology. □

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LIBRARY OF THE FUTURE

D.R. Kalia*

One may wonder whether techonological development would affect the resources and services of the Library of the Future. In so far as the philosophical *raison d'etre* of the library as a social organism is concerned, no change is likely to occur. A library shall for all times to come continue to have its main objective of making the sources of knowledge available to the user for his education, information, recreation, aesthetic appreciation and research.

No technological development in the field of electronics and satellite communication can supplant the virtues of a book. The so called Electronic Book shall never be able to replace the book, primarily because of the convenience of its use. The book can be easily carried and read anywhere, any time, without any aid. An electronic book which has not yet been marketed, will have a capsule of the size of corn which may contain upto 500 pages of the text of a book and will be activated on a portable Reader. The text will be read on the screen of the Reader. For the use of the electronic book, the light will have to be subdued during the day when there is bright sunshine. Whether such a book could be conveniently read in an aeroplane, a train or a bus is yet to be experimented with. The video-cassette projected on a TV screen is no substitute for a book either, because of its immobility.

It might astonish some to know that widespread use of radio, cinema, TV and video-cassettes have in no way reduced the incidence of use of libraries. They have no doubt encroached upon the time of the student for study at home. However, the first phase of the craze for TV and video-cassettes seems to be over, as much less time is being spent on this source of entertainment, both by children and adults. The VCRs are being sparingly used in homes. Sometimes they are not used for weeks together and those who possess them regret having bought them. A retired person whose vision and hearing are not impaired may be viewing TV or video-cassettes for long hours. But this is not of much consequence as they were spending only a part of their leisure time on reading and that has not ceased.

The paperless library envisioned by some is nothing but a flick of imagination. Convenience of use of a book is going to prevail for all times to come. A synthetic material may one day be used in place of paper but book is going to retain its present physical form. This is what commonsense would suggest.

Illusions of Computerisation

There is a widespread belief that computerisation of library operations is a panacea for all the ills afflicting the libraries. No. computer has yet been invented and equipped with imagination. It has only a memory. What distinguishes the Hemo Sapiens (Human beings) from other species is their intellectual curiosity, congnitive faculty and their ability to communicate through articulate languages. These capabilities of a human being cannot be taken over by any other species or a man made machine. Computer can do what it is instructed to do but instructions are the product of human mind. The computer only carries them out. The errors that one can commit manually, are also committed while putting in the data and it has to be counter-checked by a human being even after the computer has detected and rectified the errors. Computer is only a time saving device with greater accuracy. It certainly adds to efficiency but not in every situation.

The components of a library are physical plant (building, furniture and equipment) and reading material. Library staff is a physical link between the reading material and the user. Library management is meant to optimise the utilisation of human, material and financial resources possessed by a library. A computer can certainly help in automating the procedures involved in book selection, ordering, cataloguing, serial control, circulation and recovery of overdue books. In addition, it can generate subject bibliographies, documentation lists and retrieval of stored information either online or through a printout or both.

No computer can exercise judgement in selecting books, nor can it find out the subject of a book. This is to be done by the library staff. If the profile of a reader and his needs are fed into a computer, it can only match the material with the needs. But it can exercise no judgement in the choice of titles. The

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matching is done by the computer mechanically either through the keyword or the descriptor or the class number. Whatever material is available will be listed or displayed on the terminal. The choice will still be exercised by the reader himself as to what is relevant to his needs.

All catalogue entries are to be made by the librarian according to the cataloguing rules through the terminal. Cataloguing rules cannot be put into the computer in the form of instructions as it cannot exercise judgement in the application of the rules.

The librarians are taking as much time to classify and catalogue a book in computerised processing as they did while doing them manually. But once the Main Entry is fed into the computer it can automatically generate further entries by author, title and subject. This is where a tremendous amount of time and labour of the library staff is saved.

I have myself been fiddling with computers since 1968. Once we got the computer facility, we discovered that most of the cataloguing entries were substandard and each book had to be recatalogued and until that was done manually, we could not make use of the computer facility. It was also discovered that many Class Numbers had been wrongly assigned and if there were five copies of a book, each had been placed under a different Class Number. Rectifying the class numbers of a large collection was a herculean task in which the computer was of no help. Yet another problem was to match the class number with the descriptors and prepare class index entries. Though the computer could do it but very detailed study had to be made. The books were all the time on the move and to locate them amounted to weighing the frogs. Many books had been stolen or sent up for binding or were overdue or withdrawn from circulation. It was impossible in an open access system to locate each and every book on record for rectification and rewriting of booktags.

After putting in all the date in computer about books found missing and taken as stolen, books sent up for binding, books withdrawals from circulation and books lent out, we could still not find a large number of books, because the readers had hidden them in different places and there was always a time lag between the reader hiding it and our locating it through shelf rectification.

Identifying, whether a particular book is available in the library, with the help of a computer is one part of the job, but how to make it available to the reader is another. The efficiency of a library is judged by a reader by the time taken in making the book available to him and not by simply identifying it through the computerised catalogue. Computer is of no help in locating a book physically.

In the case of index entries of articles fed into the computer, so long as those pertained to library holdings the article in demand could be located. In case, we did not have it, it took too long a time, to get it from other sources. This exasperated the reader. We also discovered that comprehensive subject bibliographies did not satisfy the reader, because a large number of the titles included in them were not available in our library and we failed to borrow them from other libraries as inter-library lending in India was not well organised. The readers made a mockery of our preparing subject bibliographies and documentation lists.

We also discovered that after having computer facility, we could not reduce our staff and the amount of money spent on computer, its maintenance and operation was extra and it was much more than what we had anticipated. When we had our own computer, the problem was in finding and retaining a good programmer, who had become a scarce commodity.

In case, we depended upon the services of a centralised computer facility, most of the time its services were not available or it was out of order or electricity supply had failed. It took too long to train the library staff in computerisation and once they acquired the skill, they deserted us for better opportunities.

My purpose in pointing out all these difficulties is not to decry the use of computers but only to caution the overenthusiasts. They should go in for computerisation and bibliographic databases only after they have set their house in order. There is light but only at the end of the tunnel. They should first rectify the class and catalogue entries before going in for computerisation. To start with only large libraries should opt for it and the smaller ones should have a centralised computer facility. It is of no use computerising circulation system in a library where number of books lent out per day is very small. Similarly, computerisation of book selection and acquisition is of no use in a library with a small annual intake of new books. It is better to share a common computer facility for these purposes, if one exists.

If any evaluative study is made of all the libraries n India which have gone in for computerisation, one would have a mixed reaction about the virtues of computerisation of library operations. Writing articles on computerisation and delivering speeches is much easier than making a success of computerisation in a library. There are many slips between the cup and the lip than what a novice would think of. Without pre-planning one might burn his fingers and may even incur displeasure of the user.

The author and the publisher are the producers of books; the library is the preserver and promoter; and the user is the consumer of the end product. These three constitute the trinity of knowledge industry. In the trinity library is the Kingpin as it provides a wide and stable market for books. The bookseller is part of the marketing process.

The library of the future is not going to be hurt as much by technological development as by quality of writing, book production and its pricing. Ninety per cent of the hard cover are purchased by libraries, because the books are so highly priced these days that only a few individuals can afford to buy them. Library budgets are not worked out on the basis of the number of volumes to be added in a year. To absorb the inflation, the number of volumes to be acquired in a year should be multiplied by the current average price, and that would determine the book-budget of the library. But the actual practice is to make an adhoc provision, without taking into account, the number of volumes to be acquired and their cost. Consequently the libraries are buying fewer books, whereas the demand for them is on the increase with the spread of education, expansion of knowledge and emergence of new disciplines. Most of the libraries are failing to keep their runs of back files up-to-date for paucity of funds.

In fact, the real danger lies in the phenomenal increase in the cost of library service. The price of every element (building, furniture, equipment, books, journals and staff salaries) has spiralled so high that even developed countries are finding it difficult to maintain their libraries at optimal level of adequacy. The developing countries are in a much worse situation.

Conclusion

The library of the future is not going to be basically very different from what it is today. This makes its position secure. It may acquire new dimensions with improvements in printing technology, printing material and automation. New technological developments will promote the use of printed word but not supplant it. ☐

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BOOK FAIRS AND LIBRARIES

N.B. Inamdar*

Books and Modern Media

Books are the records of civilization. Till the recent development of mechanical means of communication, the written word has been the single most important factor in the intellectual development of mankind In an age when new electronic channels of communication are taking hold, the question being heard is : Will the book survive ? The television set and the computer epitomize the electronic challenge to books and publishers and libraries.

But in spite of the rapid strides made by the electronic media, books remain an essential input for individual fulfilment and national development. The increase in the world output of books, not withstanding modern technologies, provides testimony of the fact that all these fascinating machines are complementary to, and not substitute for, book and the printed word. The essence of book, unlike other forms of communication, is that it is a personal and cooperative experience between the reader and any author from any period of recorded history.

Undoubtedly, a modern library is expected to provide access to records, tapes, films, lectures, concerts and online computer searches, but books are their most dominant and visible offering. For many years, books will continue to be published by tens of thousands, bought by hundreds of millions. They will remain highly familiar objects and popular media of information and knowledge in libraries.

However, libraries face many problems regarding acquisition and availability of books. It is in this context that the role of 'Book Exhibitions' and 'Book Fairs' becomes important for libraries.

Libraries & Book Development

The year 1972 was declared by Unesco as the International Book Year. An important document that was published during the period was 'Charter of the Book'. This charter was the outcome of intense deliberations by an International Committee comprising booksellers, authors, composers, documentalists, librarians, translators and publishers.

The ten articles of this charter cover all aspects of books and their relevance to the quality of life. According to articles 7 and 8 the libraries are national resources for the transfer of information and knowledge for the employment of wisdom and beauty, They occupy the central position in the distribution of books, the promotion of reading habits, the providing of lifelong education, and economic, social and cultural progress of the communities. The charter stresses the importance of library services by establishing a network of libraries. It specially highlights the need for rural libraries in developing countries. It is recognized throughout the world that the libraries are effective instruments for human resource development.

During the 40 years of India's independence, not adequate attention was paid to development of libraries. Inspite of the fact that the Library Advisory Committee appointed by the Government of India in 1957 and subsequently constituting of the Working Group on libraries by the Planning Commission in 1964 and valuable suggestions and recommendations made by them, there are only 5 States in India which have network of public libraries based on library legislations.

Similarly ambitious schemes of educational expansion are often thwarted in the absence of a corresponding growth of libraries and book industry. Our new educational policy lays thrust on universalization of elementary education, diversified vocationalization, continuing education and functional literacy, open universities, correspondence courses, etc. These objectives could be realized only when adequate support and due attention is paid to development of libraries and books.

The National Adult Education Programme introduced by the Government of India in 1978 with a huge outlay of Rs. 600 crores, does not earmark any amount for libraries. Similarly library services in schools and colleges at present are meagre and rudimentary. Proper expansion and improvement of these services will help in raising the quality of education at comparatively small cost. There need be a planned and well organized relationship of the library systems with producers and distributors of books. It is the duty of the State and Central governments to promote such linkages.

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Despite the handicaps and constraints described above, Indian publishing since the independence has come a long way. India today publishes 20,000 titles a year in English and 18 Indian Languages covering a variety of subjects. It ranks seventh in the world of International publishing in terms of titles and third in the production of titles in English language. 80% of these books are purchased by libraries. Therefore, libraries' concern for availability of quality and relevant publications is obvious.

Extension Services in Libraries

Libraries not only collect books and other graphic records, but devise and plan various activities that help in promotion and use of books by readers and inculcate reading habits in them.

The introduction of extension work in libraries is one such activity. This work aims at reaching group of people, who might be otherwise unaware of the library and its services. The extension activities differ from library to library. They generally include 1. Lectures and Film Shows, 2. Reading circles, 3. Discussion groups, 4. Story hours for children, 5. Play and Poetry reading groups, 6. Seminars, and 7. Book exhibitions.

Book Exhibitions

The new books are brought to the notice of library members by displaying book jackets and arranging book exhibitions under the sign 'New Arrivals'. Also catchy captions like 'Book of the Day' 'Book of the Week' 'Book of the Month' are used for books' displays. These devices certainly help in promotion of book reading.

Special and topical exhibitions are organized coinciding with important national and international events, like UN Day, Human Rights Day, International Literacy Day, World Health Day, etc. Similarly on the occasion of Republic Day (January 26) or Independence Day (August 15) book exhibitions are arranged taking out related books from the racks and arranging them in an attractive manner. All such book exhibitions, provide readers visual impression and promote the use of materials lying on the racks unused. These type of book exhibitions help in implementing the following laws of Library Science, vigorously. (1) Books are for use, (2) Every reader his/her book, (3) Every book its reader, and (4) Save the time of the Reader.

Libraries also ask leading publishers/booksellers to arrange book exhibitions in libraries and thus help students, faculty, and researchers in knowing about new and scholarly publications. These exhibitions also imbue the book sense among the users o libraries.

Libraries believe in the slogan "Catch Them Young" and organize, particularly, in public and school libraries, display of childrens' books.

Book Fairs are nothing but extension of the book exhibitions and librarians and libraries are beneficiaries of such fairs to a great extent.

Book Fairs and Libraries

The idea of Book Fair has its genesis in Leipzig Fair which was introduced in the early part of the 19th century. It was originally annual gathering of booksellers, publishers and printers to settle their accounts. This practice continued until the World War II. In the year 1949, Frankfurt Book Fair was held for the first time. This Fair is considered as a successor to Leipzig. It is very important Book Fair at the international level and is organised every year. It gave impetus to the movement of book fairs. Now book fairs are held at different levels; international, regional, national, city, etc.

As the publications kept growing, the idea of book fairs got popular. Publishers all over the world were interested in finding outlet for their publications. The extraordinary growth of the book fairs during the past 25 years can be attributed to the internationalization of publishing industry. There are now about a dozen countries with Book Fairs as annual events and another dozen which have experimented with them. Every year several new ventures are made in this direction. The growth of book fair as an institution in international publishing shows no signs of slowing down.

Book Fairs are sponsored or supported by organisations, institutions, associations, etc. The significance of such fairs lies in promotion of literature and culture of a nation as well as fostering better understanding among the people and countries of the world. Books are most vital food for the human mind and human spirit. They strive constantly shaping and moulding the minds of millions and hold humanity together and bring mankind closer in search of its own identity. Book Fairs create and promote a world society of bookminded people; the objective and mission libraries strive at.

mportant International Book Fairs

The following Book Fairs have achieved great mportance in recent years. A brief description of ach of them is as follows :

Frankfurt Book Fair

It is attended by publishers, authors, literary agents, librarians, booksellers and distributors from all continents. It is the biggest book show in the world. The 1986 Fair had its theme "India—change and continuity" and a total number of 6000 books and journals in as many as 14 languages of India were displayed by Indian publishers. An equal number of books published on and about India in other countries were also exhibited. About 7000 publishers/booksellers took part in 1986 Fair. Frankfurt Fair offers best opportunity to the men in book trade for negotiating listing rights, translation rights and co-publishing rights.

Association for Asian Studies

This is an important professional society. It serves the needs of scholars of Asian studies in different parts of the United States. During their annual meetings book fairs are arranged regularly.

London Book Fair

This Fair was started in the year 1971 and has become one of the major book fairs in the world. Books in English covering various subjects are exhibited. It provides a good forum for establishing useful commercial contacts for the participant publishers and booksellers from all parts of the world.

Moscow Book Fair

This is one of the biggest Book Fairs held biannually. Major publishers from all over the world display books in different languages.

Beijing Book Fair

A considerable number of foreign publishers participate in this Fair. This Fair enables Chinese readers to have a better understanding of trends in science, technology, economy, education and culture in other countries. During the Fair the Chinese and foreign publishers negotiate co-publishing arrangements to develop scientific, technical and cultural cooperation and strengthen friendship among peoples of the world.

Pesta Buku Malaysia

This Fair is held every year. In addition to the publishers and distributors from Malaysia, the foreign publishers participate at this fair through their South East Asia offices located in the region.

Singapore Festival of Books

The renowned publishers and distributors all over the world take part in this annually held book fair.

New Delhi World Book Fair

It started in 1972 as a gift of 'International Book Year' declared by UNESCO. This book fair is held every alternate year. Leading publishers from Pakistan, Bangladesh, Nepal, West Asia, Europe and United States of America participate in this Fair, which provides excellent opportunity to the bookmen to quench their knowledge thirst. The librarians from all over India visit the fair in great numbers and buy books selecting from among thousands and thousands of books displayed. The leading personalities of the publishing world visit this fair. This provides an opportunity to the Indian publishers and book distributors to build contacts and negotiate about different matters relating to book trade and book production.

International fairs are also held regularly in Belgium, France, Argentina, Italy, Switzerland, Poland, United States of America, Zimbabwe, Spain, Yugoslavia, Baghdad, Phillipines and Egypt.

The important role of Book Fairs is that they make possible for book lovers to see under one roof such vast collection of books. The readers are influenced and become bookminded and reap the benefits of reading books. Book Fairs are great catalysts in changing the attitudes of community towards reading; the cause most dear to libraries and librarians.

Book Selection and Book Fairs

In addition to World Book Fair at New Delhi, the fairs are held in India annually at Calcutta, Madras, Bangalore, Bombay and Hyderabad. On all such occasions, the publishers and book distributors bring and display their recent and scholarly books. The wholesalers representing a number of leading publishers throughout the world participate in good numbers and display huge stocks of books. The importance of such book fairs is enhanced by participation of government sponsored autonomous organisations like, National Book Trust, Childrens Book Trust, Sahitya Academy, NCERT, Association of Indian Universities and quite a few research institutions of national importance.

Book selection is the first task of the librarian. The three main factors involved in selection of books are : Books and other library materials, (2) Readers, and (3) Funds available. These factors are ever present irrespective of the type of the library. Their interplay has resulted in a fundamental enunciation by Melvil Dewey, "The best reading for the largest number at the least cost."

As the books multiply to unmanageable proportions, judicial selection becomes very important. Demand by readers, value of materials and the objectives of library will be guiding factors. The selection should be impartial and serve as vehicle to instruct, teach and recreate.

The educational background and experience of author, reputation and reliability of publisher, treatment of the subject matter, style of presentation, accuracy and uptodateness of information and data, and physical features like typographical layout, design, appendices, glossaries and indexes, etc. are some criteria that are applied for evaluation of books before they are selected for the libraries. Publishers' catalogues, national and subject bibliographies and book reviews in journals, no doubt help libraries as selection tools. But the opportunities provided by the book fairs for the selection of required materials are much more advantageous. The variety and the volume of materials available for selection is unparallel.

Acquisition of Books in Libraries

The efficiency of acquisition programme in any library depends on librarian's having intimate knowledge of all agencies relating to book trade; publishers, wholesalers, booksellers and a number of government agencies and autonomous bodies involved in promotion and production of books. It is noticed that library science schools in Indian universities have not paid adequate attention to this very important aspect of librarianship. There is not much interaction between library and publishers/booksellers/associations. The formation of Good Offices Committee at the central level is a positive step in this direction but not adequate to cover all nuances of book acquisition.

There is a tremendous increase in book publishing in India after independence, both by private sector and government agencies. The annual output of books is about 20,000 in all the 15 languages of India including English. But it is seen that proper dissemination of information about these publications is absent. This hampers the rhythm of acquisition schedule. The librarians always feel lost when they are asked to procure books of specialised nature for which there are no direct trade channels in India. Ironically sometimes they go in for foreign publications when equally scholarly books of high standard have been produced in India.

Book fairs provide unique opportunity to the librarians to get first hand knowledge about the book trade and thus overcome these shortcomings.

Developing Special Collections

The university and special libraries will be focussing their attention in acquiring books relating to specialised areas like nutrition, medicine, genetics, etc. It is seen that there are very few publishers and booksellers that have paid attention to this aspect of libraries' needs. The librarians have to take chances by contacting a number of booksellers, sometimes without any success. There are very few publishers like Wilson and Bowker (US), Whitaker (UK), Elsevier (Europe), and NTIS (US) to whom librarians can look confidently for acquisition of reference books, books on science and technology and technical reports.

A widely represented book fair at international or national level will be a great boon for libraries in building specialised collections.

Books in Indian Languages

This is another area where librarians do not possess adequate knowledge. Out of the 20,000 annual book production in India, 55% relate to Indian languages. The bibliographical control of these publications is not satisfactory. In the bargain the libraries miss good books produced in Indian languages. Almost all states have taken up programmes of book production in their respective state languages through Academies and encouraging other scholarly agencies.

A special display of books in Indian languages is organised during the World Book Fair. Also the translations of some of the standard titles in other Indian languages are exhibited. This is very important aspect for libraries in as much as the states have adopted the respective state language as a medium of instruction in schools and colleges. These languages are being used very widely in official matters also.

ildrens Books

All public libraries have children's corners. Besides here are exclusive libraries for children like Bal Bhavan n Hyderabad. There is a great need of having attracve books in all such libraries. Attempts are being nade in India through NBT, CBT, NCERT and some rivate publishers to produce childrens books in nglish and Indian languages. But the total annual utput has not exceeded 500 titles.

Design, contents, style and language of children's ooks needs special attention. The librarians and uthors who are interested in working in this field will e amply benefited by visiting book fairs, where hildrens books from all countries are displayed. cience and technology books for children that are roduced in Russia and displayed during the World Book Fair need special mention. They are quite attracive and inexpensive. Some of these titles could be asily translated by the librarians and authors having ngenuity and imagination.

Book Grants and Book Fairs

It is typical of India that book grants are released owards the end of the financial year. This upsets the rhythm of acquisition of library materials. Added to that the procedure requires that the library should spend the grant before the end of the financial year. The natural result of this is that the librarians do spend the money and procure books but at the cost of quality and relevance. In all such cases World Book Fair held in the month of February could be visited by the librarians and allotted grants used more profitably. They will have ample choice to select the materials from among the great number of books displayed under one roof. Any other book fair held during the month of March will also be helpful in buying useful books within the stipulated time.

Seminars and Workshops

Lectures, seminars, workshops, etc, are the essential part of the book fairs. The librarians should be invited to all such programmes. In fact, it will be of great use and interest if these programmes are jointly organised by library and book trade associations. The exchange of ideas and contacts built during such meetings will be of mutual benefit.

There is an intimate connection between book trade and libraries. Both of them have the common objective of promoting the welfare of the society through medium of books. Book fairs provide a unique opportunity to libraries and people in book trade to have meaningful interaction. □

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Spiralling Prices And Library Budget

V.B. Nanda*

Introduction

Richelieu said that 'finances are the nerves of state', a 'lever of Archimdes', when firmly set gives power to move the world. Given unlimited financial resources and free hand, any library shall endeavour to acquire every book and journal printed anywhere in the world and thus build its collection to formidable proportions. But like the philosopher's stone, such ideal situation does not exist anywhere.

Libraries all over the world suffer from financial famine, which of course, is more severe in the developing countries. With the present financial instability the world over, libraries in the developing countries are the worst hit by the financial famine. On the one hand new educational institutions with libraries as their essential components are being established in large numbers, on the other, the financial resources of the government and funding bodies have dried up or are in process of drying up. In India, whenever any calamity or emergency hits the nation, the axe of economic cut falls upon the educational budget and in that process library finances are the first casualty.

The financial problems faced by the libraries, especially in our country, are manifold. The fast expanding boundaries of knowledge and proliferation in publishing have made it difficult for the libraries to keep pace. The prices of books and subscription rates of journals have been increasing at a very high rate. The financial resources of libraries have been shrinking. Where the budget cut has not been enforced, the rate of increase in the budget which varies from 3 to 5 per cent is not sufficient to keep the present rate of addition of books and maintenance of the current subscription list of journals. With the expanding universe of knowledge and widening horizons of research, the demands upon the libraries have become enormous which they are not able to meet. In India, while the growth of the academic libraries have become stunted, the public libraries are at the verge of turning into stinking pools of books. In this light, we study here the spiralling problem of price rise of books and journals and how best we may counter the same.

Book Production

In spite of proliferation of knowledge, the actual production of books has decreased the world over. After World War II, the faculty and the scientists have been caught in a net called 'publish-or-perish' and there was a boom in publishing. Though today many bright authors do not get published or are waiting in the wings, the book production has developed into a purely professional-profit-oriented-business. Gone are the days when scholars would build their personal libraries by purchasing two penny 'Everyman's Library' or 'World Classics' series and feel proud of their personal collection. Today, even in the U.S.A., any lover of books wanting to build his personal library shall have to wait for a year or two till the publishers consign their unsold stocks to the super markets and general stores for disposal at throw-away prices. Then watchful eyes would collect the books of choice for addition to the personal library.

These stocks of unsold items are also sold to the book trade in the third world countries where these are unscrupulously sold as 'new' at the printed price. In India, this game has been played successfully by the Trade to the disadvantage of the unsuspecting libraries. From this single fact it will be seen that there has been a change in orientation of the publishers after the World War II. Their only aim is to price the books very high and make profit by selling a limited number of copies to the libraries at home and then unload the unsold stocks elsewhere with a 'who cares' attitude.

A reference may also be made to the multi-tier book pricing schedules of foreign publishers, where books called EEE, ELBS and like editions, are priced low for sale in foreign markets. Sometimes there are prices in two different currencies to offer advantage to the trade only. If the publishers cannot make profit in their own countries, how can they survive by reducing the price to half or so in foreign markets ? Most of the time one finds xth edition in economy price only after its subsequent (x+1)th edition has come in the domestic market. This trend has implications for the third world countries which are the only losers in the long run.

Clive Bingley has identified the following two

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main reasons about the sharp rise in the book prices during the last two decades : (1) progressive under-pricing of books over the long period of time before World War II, and (2) the concurrent decline proportionately in publishers' profits. He further says that it was before the 1950s that the books were under-priced in comparison to the high cost of production and distribution, and this realisation dawned upon the trade only when the book production industry was in the grip of a stock boom. The book publishing industry is a very high-capital-investment industry and cannot afford to keep the stocks of unsold books. Richard Blackwell too, supports the view of Bingley. The result had been that the number of copies published came down with profits going sky high in the 50s. The trend continues till this date. The average price of an ordinary book has gone up hundred times when compared to the price in the year 1939. Tables 1, 2 and 3 shall support this view.

Table 1 : Production

Country	1979	1980	1981	1982	1983	1984
USA	88721	86377	76976	45935	53380	41380
UK	41864	48069	42972	48307	51071	51535
W. Germany	59666	64761	56568	NA	NA	NA
India	11087	13148	11582	10649	NA	NA

Table 1 shows that in the USA, production of books had gone down during 1979 and 1984 period. In the UK, it had gone down during 1979 and 1981, but in 1982 it caught up and in 1984 exceeded the 1979 mark. In Germany it rose in 1980, but declined in 1981. In India, it increased in 1980, but came down in 1981 and subsequently in 1982 the overall trend in book production was downward.

Table 2 : Average Prices of Books in UK
(Cut-off Year 1971-72=100)

Year	Ave. Price in £	Index
1971-72	3.70	100.00
1972-73	3.33	90.00
1973-74	3.33	90.00
1974-75	3.50	92.00
1976	4.99	133.00
1977	5.93	160.00
1979	10.81	292.00
1982	14.29	386.00
1983	13.61	367.00
1984	16.51	445.00

Table 2 shows that average unit price of book the U.K. taken as 100 in 1971-72 rose to 445 in 198

Table 3 : Average Prices of Books in USA
(Cut-off Year 1966-69=100)

Year	Ave. Price in $	Index
1966-69	8.77	100.00
1971	13.25	151.00
1972	12.99	148.01
1973	12.20	139.01
1974	14.09	160.07
1975	16.19	184.06
1976	17.39	198.03
1977	19.22	219.02
1981	26.63	300.01
1982	30.34	345.00
1983	31.19	350.01
1984	29.81	340.00

Table 3 shows that if the average unit price w 100 in 1966-69, it touched 340 in 1984.

In case of Indian books the random sampli shows that if the price of a book was Rs. 30 in 197 it is Rs. 200 in 1987. This is about seven tim increase in price and has become difficult to absorb b any library.

The Indian Scene

In the Indian context, one would like to refer the problems faced by the libraries. Mr. Khushwa Singh has said that the only sufferer in the game book production is the author. His is a subjecti statement. In fact the libraries are bracketed wi authors as the sufferers. The Indian book trade h followed, in matter of pricing, the ways of the brothers abroad. Their concern for quality is total missing. The eye is only on the libraries. The who production and the pricing of book is oriented t wards its sale to the libraries alone. In this gan the readers, who otherwise would be tempted to pu chase books for their personal use, have been total alienated because of high price of the Indian book Thus if on the one hand many promising authors not get published, or get cheated if at all publishe on the other, the libraries' budgets have become i sufficient to meet the bill of adequate book purchase

The Indian book industry has not made any effor which it otherwise should have done morally i.e. price the books reasonably so that an average citiz may have strength enough to purchase. If mo opies of a book at reasonable price are thrown for ale in the market, there would be more readers, more ales, more educational and intellectual development of the society, and more profit for the publishers. This fact has been totally forgotten by the Indian Book Publishing Trade.

The Indian scene is not different from the scenes in the U.K. and the U.S.A. from the commercial point of view. We have noticed from Table 1 that the book production, numberwise, has gone down in all the three countries. Perhaps in the coming years we may see increase in book production in India, but the situation in matter of price vis-a-vis libraries and readers is not likely to change until and unless some awareness in concerned quarters takes place or the government come down heavily upon the Book Publishing Trade. Of course, the government and the semi-government organizations have been publishing and selling books at a price which in all cases is nearly 1/4 of the price otherwise fixed for the same book by the book trade. The hegemony of the book trade and the red tape in the government departments have been such that many good government and semi-government publications are sometimes not able to sell well and reach the public. For this also, some revolutionary changes are required.

But the Indian publisher is held at ransom by the Indian bookseller who is unmindful of the needs of the reading public because the aim is huge profit only. The Indian publishing industry could be counted on fingertips. In some cases the publishers are the booksellers too and enter into barter deals among themselves. This is not conducive to the book industry. If the pricing schedules are not standardized and the book prices not drastically cut and brought to a reasonable level, there will be no support from the reading community. The libraries with their shrinking financial resources shall soon cease to be the sole source of support to the book trade.

The very qualily of reading material published in India also leads the industry to print fewer copies. This is also one factor for the price of the book to be high, making it virtually impossible for the average reader to purchase. Another factor is the low capacity of the average Indian reader to purchase a book for his own use. The inflation and the consequent higher cost of living have made the individual's resources limited. High price acts as a disincentive to individual to purchase books. All these factors have affected general readers, who prefer newspapers and popular magazines to the serious reading of higher intellectual content. Whether it is an academic institution or general public, we need libraries to keep our academic programmes going on and our masses provided with means of self-education. But the book production cannot survive upon the libraries alone. The publishing trade shall therefore have to be economically self-supporting and for this published price shall have io be standardised in a logical way to suit the pockets of the individuals as well as institutions in the interest of both, the trade and the society.

Production of Periodicals

The periodicals form the backbone of research programme in any subject or discipline. They are the primary source of information and are valued the most. The periodicals therefore have preference over books. Proliferation of periodicals has been such that in 1987-88 we have 70,800 periodicals listed in the Ulrichs' International Periodicals Directory against 40,000 listed in the same Directory in 1969-70.

Table 4 : Growth of Periodicals

(Cut-off year 1966-69=100)

Year	No. of Periodicals	Index
1969-70	40,000	100.00
1971-72	60,000	150.00
1977-78	60,000	150.00
1983-84	64,800	162.00
1987-88	70,000	177.00

Table 4 gives a clear picture of rise in periodicals published in the world. As compared to the book production, which has a downward slope, the periodical publications have risen to 177 with 1969-70 figure taken as 100. This increase in number of periodicals shall have to be read in conjunction with increase in their subscription rates.

From Table 5 (on next page) it will be seen that subscription rates of journals have increased by leaps and bounds and have totally upset financial management in the libraries the world over. The annual rate of increase in library budget in India is 3 to 5 per cent which comes to 51 to 85 per cent during 1970 to 1987. But the journals' subscription rates have increased six times during 1970-1987, which even the libraries in the U.S.A., called the Land-of-Libraries, are not able to afford. The publishers argue that increased costs of labour and material have forced them to hike the subscription rates. But Robert L. Houbeck Jr. asks whether the production costs in publishing industry have really gone up by four times faster than the general inflation rates in the U.S. He further cites the U.S. Deptt. of Commerce report on the American magazine industry that the rise in prices of paper and postage had been 'moderate' enough for the publishers of journals to balance the subscription rates with 3 to 4 per cent annual increase. This is a just argument and is in line with budgetary increase of 3 to 5 per cent as admissible in India and elsewhere in the world.]

Table-5

Selected Journal Prices, 1970-1987
(In U.S. Dollars)

Journal (Publisher)	1970	1975	1978	% Increase 70-75	% Increase 75-87
Sciences					
Biochimica et Biophysica Acta (Elsevier)	$495	$1551	$3882	213%	150%
Coordination Chemistry Reviews (Elsevier)	25	136	745	444	448
Inorganica Chimica Acta (Elsevier-Sequoia)	26	235	1918	804	716
International Journal of Theoretical Physics (Plenum)	26	135	395	419	193
Journal of Theoretical Biology (Academic)	80	234	1195	193	411
Humanities & Social Sciences Accounting Review (American Accounting Assn.)	9	25	50	178	100
Architectural Review (Architectural Press)	14.40	37.50	85	160	127
Historical Abstracts (ABC-Clio)	151	495	1749	228	253
Journal of Industrial Economics (Black-well)	5	20	75	300	275
Survey of Current Business (U.S. Office of Bus. Econ.)	9	48	48	433	0
U.S. Consumer Price Index	$116.3	$161.2	$338.3*	39%	110%

*Based on 1986 CPI (328.4)+1987 inflation of 3%

Source : **J. of Acad. Libnship v. 13(4) : 1987, p. 215**

In fact, publishers of both the books and the periodicals have taken the customers i.e. the libraries for granted and have been changing during the last 2½ decades, about as much as the customers would pay. Since the customers have not grudged these payments, the price hike has been a regular phenomenon and has reached the proportion that has become impossible to bear today.

Proposed Remedies

Robert L. Houbeck Jr. has pleaded for aggressi librarianship and advised the publishing trade to abso the costs and not take the libraries for granted. Tru we have paid as far as we could pay. But now we ha reached the tether's end. The following measures a therefore proposed for consideration of all concerne

1. The funding agencies should ensure that t libraries are given adequate funds to mainta the acquisition programmes, namely, regul inflow of books and maintaining current sub cription lists of journals at all costs.
2. The academicians, intellectuals, users of th libraries and all book-lovers should acknowledge and support the 'citizen's right' purchase books at a reasonable price an organize a 'Consumer Movement'. The publ opinion thus created shall force the publishir trade to realise the importance of publishin more copies at less price so that they hav their rightful profit and the public has acces to the printed word. This is the only alternative which is in the interest of all.
3. The resource sharing by the libraries is a ver very important topic which has been discusse all over the world. But the results have no been satisfactory. A fresh thought shall hav to be given, and ways and means devised. Th accounts and audit rules shall have to b relaxed. The Telecommunication Departmen shall have to permit the online arragement between the libraries and the databases to cros the public roads unhampered. The librarie shall have to wake up to the knocks of th 21st Century and start upon automation at onc and assist in creating databases at focal point on regional and national levels. A full volum could be written on this issue. A proposal o this issue from the Haryana Agricultural University has also been pending before the AIU.
4. The rising subscription rates have given anothe thought, that is, we may draft a national polic and subscribe to the costly abstracting and indexing services on national and regiona levels only, feed them in the data bases an permit online access to the user libraries. The city of Delhi need not purchase multipl copies of Biological Abstracts, Chemical Abstracts and the like.
5. An idea which is advanced by the Faculty is that the journals have two-tier pricing system– a higher price for the libraries and a lower

price for the individuals. The faculty members may therefore register a subscription in their individual names but the parent body pays, and the journals when received by the individuals, are passed on to the libraries. This shall affect enormous saving and ease the financial stringency. This shall also make the publishers see the reason.

6. Another remedy is that the libraries having a book and journal budget of Rs. 10 lac and above start Bookshops of their own and force the Trade on their own or through government channels to extend Trade Terms to these Bookshops. The Bookshops then sell books and journals to the libraries and also to the faculty and the students at a 'no profit no loss' basis. Some of the librarians have called this venture as a 'fall from professional ethics'. One should not forget that the question of 'ethics' is equally applicable to the Publishing and Book Trade. The Indian Rupee in the name of 'managed floating' have depreciated considerably. In December 1986 the rates were 'Rs. 100.00= U.S.$7.6 = U.K.£5.2 = D.M.14.8=Yen 1214', while in December 1987 the rates were 'Rs. 100 = U.S $7.8 = U.K.£4.2=D.M.12.5=Yen 965'. The Rupee vis-a-vis Dollar seems stable. But it has floated down considerably in matter of other currencies. In such circumstances, how are we to stretch our Rupee to purchase or subscribe to adequate number of books or journals ? The Bookshop is one strong answer to this problem. The experiments at the Universities at Pantnagar and Hisar and now at the JNU have shown a marked success of this venture.

7. The publishers of books and journals too have a remedy to the problem of rising costs in their own hands. The annual trend increase in cost of materials and labour has been around 3 to 5 per cent during last about two decades, but the increase in price in case of books and journals is six to seven times. It is obligatory upon the Trade to acknowledge the right of the people to have free access to the printed word. They should therefore rise to the occasion, check the price-rise and help the people read more. This shall obviously and ultimately prove to their advantage.

The old saying, 'it is the speaking wheel that gets the grease while the silent one is thought to be working well' holds good here. The librarians and the libraries have remained silent enough. Now is the time to raise the voice and demand the right of masses to the printed word at reasonable price. □

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Baljit S. Grewal*

What we learn from the book of nature, we book it, to atune the coming generations. A good many seasoned people, from different times and climes, have expressed their views on books, as per their experiences, which read as follows :

1. Books are light houses erected in the great sea of time.

—E.P. Whipple

2. Books are those faithful mirrors that reflect to our mind, the minds of sages and heroes.

—Gibbon

3. A good book is the best of friend, the same today and forever.

—Tupper

4. Some books are to be tasted; others to be swallowed; and some few to be chewed and digested.

—Bacon

5. Without books, God is silent, justice dormant, natural science at a stand, philosophy lame, letters dumb, and all things involved in darkness.

—Bartholini

6. Books are the legacies that a great genius leaves to mankind which are delivered down from generation to generation, as presents to the posterity of those who are yet unborn.

—Joseph Addison

7. The past but lives in written words; a thousand ages were blank if books had not evoked their ghosts and kept the pale embodied shades to warn us from fleshless lips.

—Bulwer

8. Books are masters who instruct us without rods or ferules, without words or anger, without bread or money. If you approach them, they are not asleep; if you seek them, they do not hide; if you blunder they do not scold; if you are ignorant, they do not laugh at you.

—Richard de Bury

9. The books we read should be chosen with great care, that they may be as an Egyptian king wrote over his library, "The medicines of the soul".

—Paxton Hood

10. There was a time when the world acted on books; now books act on the world.

—Joubert

11. There is no worse robber than a bad book.

—Italian Proverb

12. Bad books are like intoxicating drinks; they furnish neither nourishment, nor medicine—both improperly excite; the one the mind; the other the body. The desire for each increases by being fed—both ruin; one the intellect; the other the health; and together, the soul. The safeguard against each is the same —total abstinence from all that intoxicates either mind or body.

—Tryon Edwards

13. The best of a book is not the thought which it contains but the thought which it suggests; just as the charm of music dwells not in the tones but in the echoes of our hearts.

O.W. Holmes

14. We are liable to be corrupted by books, as by companions.

—Fielding

15. Books are but waste paper unless we spend in action the wisdom we get from thought.

—Bulwer

16. Books, like proverbs, receive their chief value from the stamp and esteem of ages through which they have passed.

—Sir W. Temple

17. A good book is the precious life-blood of a master-spirit embalmed and treasured up on purpose for a life beyond.

—Milton

18. When a book raises your spirit and inspires you with noble and manly thoughts, seek for no other test of its excellence. It is good, and made by a good workman.

—Bruyere

**Dean of Students, Punjabi University, Patiala-147002.*

19. In books, it is the chief of all perfections to be plain and brief.

—Butler

20. Books are men of higher stature; the only men that speak aloud for future times to hear.

—Barrett

21. He that loves not books before he comes to thirty years of age, will hardly love them enough afterward to understand them.

—Clarendon

22. A book is a garden, an orchard, a storehouse, a party, a company by the way, a counsellor, a multitude of counsellors.

—H.W. Beecher

23. Most books, like their authors, are born to die; of only a few books can it be said that death hath no dominion over them; they live and their influence lives for ever.

—J. Swartz

24. Books should to one of these four ends conduce, for wisdom, piety delight, or use.

—Denham

25. A great book that comes from a great thinker is a ship of thought, deep freighted with truth and beauty.

—Theodore Parker

26. To use books rightly, is to go to them for help; to appeal to them when our own knowledge and power fail; to be led by them into wider sight and purer conception than, our own and to receive from them the united sentence of the judges and councils of all time, against our solitary and unstable opinions.

—Ruskin

27. A bad book is the worse that it cannot repent. It has not been the devil's policy to keep the masses of mankind in ignorance; but finding that they will read, he is doing all in his power to poison their books.

—E.N. Kirk

28. The silent influence of books, is a mighty power in the world; and there is a joy in reading them known only to those who read them with desire and enthusiasm. Silent, passive and noiseless though they be, they yet set in action countless multitudes, and change the order of nations.

—Giles

29. If a book comes from the heart it will contrive to reach other hearts. All art and authocraft are of small account to that.

—Carlyle

30. Every man is a volume if you know how to read him.

—W.E. Channing

31. The first step to knowledge is to know that we are ignorant.

—Robert Cecil

32. The more you practice, what you know the more shall you know what to practice.

—W. Jenkin

33. Every branch of knowledge which a good man possesses, he may apply to some good purpose.

—C. Buchanan

34. Scientific knowledge is constantly changing. A discovery of one year receives confirmation the next or is thrown aside.

—James T. Adams

35. The end of all knowledge should be in virtuous action.

—Sir P. Sidney

36. Real knowledge in its progress, is the forerunner of liberality and enlightened toleration.

—Brougham

37. The word knowledge, strictly employed, implies three things viz., truth, proof and conviction.

—Whately

38. Pleasure is a shadow, wealth is vanity, and power a pageant, but knowledge is ecstatic in enjoyment, perennial in fame, unlimited in space, and infinite in duration. In the performance of its sacred offices it fears no danger, spares no expense, looks in the volcano, dives into ocean, perforates the earth, wings its flight into the skies, explores sea and land, contemplates the distant, examines the minute, comprehends the great, ascends the sublime—no place too remote for its grasp, no height too exalted for its reach.

—De Witt Clinton

39. True wisdom is to know what is best worth knowing and to do what is best worth doing.

—Baljit S. Grewal

40. Library is an everblossoming garden from where the seekers of knowledge gather the honeyed sweetness of life.

—Baljit S. Grewal

Responsibilities to Future Generations

The advancement in science and technology has made significant contributions to economic well-being of people. Increasing industrialization and urbanisation and excessive exploitation of natural resources have however adversely affected ecological balance and the capacity of land to support growing population. The intergenerational equity of options exercised by the human kind is seriously threatened by new genetic, nuclear and other technologies, new capacities for ecological change and certain socio-economic phenomena such as large scale underdevelopment and inequalities. All these impinge on the well-being of future generations, and the diversity of options available to them. Their interests are not represented in the decision making process of the present generations, or in the content of development programmes at all levels.

It is therefore desirable to preserve cultural and national heritage of mankind to protect the interests of future generations. With a view to sensitizing the economic and social planners, scientists, educationists and experts on environment, a regional conference on 'Responsibilities to Future Generations and their Environment (RFGE)' was organised at the Asian Institute of Technology, Bangkok from January 12-18, 1988. The Conference was jointly sponsored by the United Nations Educational, Scientific and Cultural Organisation (UNESCO), United Nations Environment Programme (UNEP) and International Environment Institute (IEI). The deliberations of the Conference were conducted under the chairmanship of Y. Fukushima (Japan) and Mr. G. Gunatillike (Sri Lanka) with Mr. M. M. Ansari (India) and Mr. D. Gayawali (Nepal) as rapporteurs of various sessions. The delegates from a number of countries and International agencies participated in the Conference.

In his opening remarks, Dr. Tony Macelli, Director, International Environment Institute, Malta said that one of the major objectives of the Conference was to clarify the interests of future human generations and to stimulate the world community to act to promote these interests explicity and actively. The concept of responsibilities of present generations to future generations is a logical complement to the universally respected norm of the common good of the human species, and the important concept of the common heritage of mankind. The participants at the conference emphasised the need for establishing a network of relations between individuals and institutions so as to promote the interests of future generations.

The Declaration adopted by the Conference and the programme of action suggested by the participants are as follows :

Declaration

Development and environment are the contexts in whice we may identify the interests of future generations. Without claiming that a single world-view or formulation can be shared in detail by everyone, we have come to the following consensus about the need for an alternative vision of environment and development, that would protect nature and the interests of present and future generations.

The environment consists of the non-living and living natural environment, the human-built physical environment, and the socio-cultural environment. Up to now, development has been the changing of parts of the overall environment in an attempt to secure a better human life, at least of certain groups or categories of people. That is, development has been an attempt to change the world for the sake of human well-being, the fulfilment of human potential.

However, from the ecological insights of modern science, and from observation of the environmental and human effects of human technologies, it is clear that the environment is part of man, and man is part of the environment. The image of the environment as something which is to be overcome through development is now clearly an inadequate image, and must be replaced by more holistic paradigms. Man-environment harmony is crucial, and must be maintained whenever the form of this harmony is altered in development.

A major indicator of human potential is the amount of available options and decision-making capacity of persons and collectivities in respect of their own life. They use these options to meet their basic needs and to develop their human potential in their own way.

However, humans are observed to have a biological, emotional, psychological, and spiritual orientation to collective living and endeavour. Thus, another indicator of the fulfilment of human potential should be seen to be the extent to which persons are able to fulfil themselves by contributing to each other's welfare and enrichment. Such a paradigm of human life would tend to ultimately favour the achievement of more harmony between individual and society. Social justice, of course, is one of the prerequisites for social harmony.

Harmony of the single man-nature system, personal and societal autonomy, and available personal and social option; and social solidarity, are thus indispensable elements which must be preserved or be improved in true development. These elements may then be used fore valuating whatever purports to be human development. The same considerations also suggest that the universal human values which people actually hold, within the diverse cultural traditions of humankind are respected in genuine human development.

Since economic and environmental development has been an attempt to promote human development, it must therefore be judged a failure when it does not pass the tests of diversity of available options, increased autonomy of persons and groups, promotion of human solidarity, and respect for universal human values. If we also accept the need for man-naure harmony; then the failure of many past development processes is even more clear.

Various significant processes in the environment, in the human species itself, and in the man-environment interface extend through time-periods that are long compared to the life of any one human generation. Some of these processes are the result of human action, and these are irreversible, and reduce available options for future generations.

Thus, development attempts are mistaken or shortsighted when they lack an intergenerational perspective and an intergenerational responsibility, such that the criteria already mentioned can apply also in the future: diversity of available options, human autonomy and solidarity, and respect for cultural values. The time-perspective for development must include future generations.

The criteria are here understood to relate to intragenerational values, but as applied to future generations affected by development attempts of the previous generations. They render illegitimate, for example, actions today that are bound to increase or maintain inequality among people of some future generations. However, the essential unity (e.g. felt unity, genetic unity) of the human species through time, requires that the required solidarity be also intergenerational, i e. between generations. Present generations contribute to their own human fulfilment when they feel and implement in action their solidarity with future generations. Similarly, the necessary autonomy should be also enjoyed by each generation, or each group of contemporary generations, who should not be subject to restrictions of options imposed by previous generations.

Also, because of the interconnectedness of many of these long-term processes, not only is the man-against-nature paradigm just as mistaken intertemporally as it was intratemporally, but also the consequences of holding it are likely to become catastrophic given enough time. Only a paradigm of man-nature wholeness and harmony is appropriate to guide an intertemporal perspective about life and development on planet Earth. This harmony may, and will undergo transformation while still remaining a harmony.

We conclude that development activity of present generations must inescapably follow a new vision, one with a long time-perspective encompassing present generations and future generations. The new vision insists on the preservation and enhancement of options and autonomy. It also insists tha present actions should promote justice and solidarity within the present generations, within future generations, and between present and future generations. The vision must be based on a changing harmony between man and nature.

We therefore affirm our own concern for present and future generations, and reflect the growing public concern that the interests of future generations should be protected. We believe the possibility of having a world for future generations that is more secure, more substainable economically and environmentally and richer in quality of life. For the realisation of this possibility we urge the present generations to design new approaches to promote and carry out the required transitions essential to a planet that is at the same time sustained and renewed and enhanced. These include :

- —a demographic transition to a stable population;
- —an energy and resource-use transition through technologies which rely on nature's "income" and not depletion of its "capital";
- —a transition to patterns of human settlement which promote rural-urban harmonay;
- —an economic transition to sustainable development and an equitable sharing of its benefits within and between countries and regions;
- — an educational transition to a comprehensive and integrative understanding of the world and of human knowledge and wisdom;
- —a cultural transition to a world or harmonious cultural diversity;

—a political, economic, and educational transition to a peaceful word without weapons of mass destruction;

We hold that simultaneous existence of poverty and opulence constitutes an environmental and human threat extending to future generations.

We urge that popular re-examination of values and lifestyles be encouraged and broadened so that it can be undertaken with an awareness of realities that concern the life of the planet today and that of the time of our children's children.

Programme of Action

In order to promote a value system that would be mindful of the interests of the future generations it is felt that a set of actions at the regional level as well as the international level must be initiated. It is also felt that these actions must reach a broad spectrum of the the community that would facilitate the promoting of such a value system. The communities are :

- —teaching community
- —community based organizations (CBOs) and non-governmental organisations (NGOs)
- —mass media
- —religious communities
- —artistic communities
- —legal and judicial communities

Dr. Agrawala Takes Over

Dr. Surendra Kumar Agrawala has taken over from Dr. Jagdish Narain as Secretary of the Association of Indian Universities on 6th February, 1988.

Born at Bilgram in District Hardoi (UP) on 18th January, 1929, Dr. Agrawala did his M.A., LL.M. from Lucknow University. He was awarded a fellowship for Post-graduate studies (LL.M) the Harvard Law School, USA. He followed it up with an LL.D. degree from Lucknow University. A brilliant scholar, Dr. Agrawala claimed Gold Medal for standing first at the LL.M. examination and was awarded the Banerjee Research Prize for best research work done in 1962 for his LL.D. thesis.

A popular and devoted teacher, he taught law at Lucknow University (1953-62), Aligarh Muslim University (1962-65) and University of Poona where he headed the University Department of Law from 1965 to 1985. He was adjudged the Best University Teacher by the Government of Maharashtra in 1978-79. He took up the Vice-Chancellorship of the Agra University in November 1985 which he has relinquished to take over as Secretary of the Association of Indian Universities.

Dr. S. K. Agrawala

A legal luminary, Dr. Agrawala was a member of Bar Council of India Legal Education Committee for two terms, a member of the Governing Council of Indian Law Institute, member of the first Academic Council of the National Law School of the Bar Council of India, and a member of the Executive Board of the International Association of Legal Science, The Hague. He has been on the Editorial Board of the Indian Journal of International Law and the Editorial Board on Constitutional Law of the Bar Council of India Trust.. He has been the Convenor, University Teachers Research Group of the International Law Association (Indian Branch) as also of UGC National Advisory Panel of Law. He was nominated as the National Lecturer in Law by the UGC in 1976-77 and was also called upon to deliver the K.M. Munshi Memorial Lectures in 1985 by the Indian Law Institute.

A widely travelled person, Dr. Agrawala participated in a number of international conferences, seminars and colloquia in Thailand, Greece, Nigeria, Nepal, The Netherlands, West Germany and USA.

He has published 7 books, over 30 research papers and has contributed to over a dozen anthologies.

Dr. Agrawala brings to his new office a rich resource of wide and varied experience. We welcome him and hope that under his stewardship, the Association will not only consolidate its present activities but also add new dimensions to its services to the Member Universities. ☐

Regional Strategy

The network which is designed for the Future program should be linked through personal and institutional means with networks on alternative development strategies.

In the very first phase of the program a set of state-of-the-art studies should be prepared concerning the responsibility to future generations in countries selected on the basis of diversities of culture and development levels.

The resulting studies must be synthesized by an interdisciplinary, group identified by the network to indicate strategies and modes of action for enhancing responsibility to future generations applicable to the diverse societies within the region. Some form of this interdisciplinary group should be involved with designing the methodology and framework of the state-of-the-art studies.

This material will be made available to the groups concerned with the future as identified above for dialogue, feedback, action and interaction.

International Strategy

In order to help raise the world consciousness regarding the long-term dangers to future generations, the IEI secretariat, together with the appropriate UN organizations, is to commission studies on the long-term hidden dangers in the present path of development in the scientific and technological fields as well as in forms of social organization. These studies must again be be disseminated among the communities in a way that will encourage further dialogue.

UNESCO, UNEP and IEI must encourage the active examination of paradigms in disciplines as they relate to the future and emerging trends. For example, in economics, some of the beliefs and practices that need re-examining from the prespective of the future generations are : B/C analysis and the discounting of the future, national accounting which values GDP rather than physical quality of life indicators, financial income rather than the richness of life, and the accounting system which does not distinguish between the output that comes out of renewable and non-renewable resources as well as the durability of capital over time. Such items can be found in most of the other disciplines too. In such studies special sensitivity must be shown to the interdisciplinary and integrative aspects of the disciplines to correct the adverse effects of specialization and fragmentation of human knowledge.

Concurrently with the above, some specific thematic studies should be carried out such as the schooling system of the future, future modes of communication and the effect on social organization, technologies facilitating decentralization, the future relationship between the built and the natural environments, and global migration and the impact on cultural diversity of the future.

UNESCO should support the introduction of courses and programs into the education system to sesitize the younger generation regarding the responsibilities to the future generations.

For further information, or if you are interested in the global network, or if you can send relevant articles and texts or suggestions—please write to Dr. Tony Macelli, Future Generations Network, I.E.I., c/o Foundation for International Studies, Old University Building, Valletta, Malta (telex 1673 FOUND).

[*Contributed by* M. M. Ansari]

Harnessing Technology for Education

The Central Institute for Educational Technology (CIET) of the National Council of Educational Research and Training (NCERT) is reported to have undertaken the work of making the educational video programmes for the children. These programmes are expected to help in the realisation of the Government's goal of universalisation of primary education by 1990 for children up to 14 years of age.

The CIET, set up in 1984, is aided by State Institutes for Educational Technology (SIET) in six States, the Development and Educational Communication Unit (DECU) of the Indian Space Research Organisation (ISRO), and international agencies like the United Nations Development Programme (UNDP), UNESCO, and the Asia Pacific Institute for Broadcasting Development (AIBD).

Set up for promoting an understanding and utilisation of educational technology for the spread of education, CIET realised that the video programmes to be prepared for children, most of whom were from rural areas and non-School going, had to be in their natural locales and steeped in their own culture. With this in view, the SIET were established in the six States, namely, Andhra Pradesh, Bihar, Gujarat, Maharashtra, Orissa and Uttar Pradesh covered under the Satellite Instructional Television Experiment (SITE) and the INSAT-IB programmes.

The CIET initially provided he entire hardware to the SIETs, and continues to provide the finance and infrastructure like software and training. However, most SIETs have now commenced production of their own programmes in their own language and culture. The programmes produced thus are beamed for six hours daily in these six states.

DECU, formed in December 1983, has been engaged in aiding CIET in programme production, development and adaptation of video hardware, communications research, and training and was responsible for the production of science programmes for SITE.

The CIET invited experts of India for its in-country international training programmes under which six workshops have already been held in different parts of the country.

Super Conductivity Research Stressed

Prof. C.N.R. Rao who heads a special cell appointed by the Prime Minister to monitor research in super conductivity called for a greater investment in super-conductivity research which was a major task before national laboratories. He was delivering the Zaheer memorial lecture at the general plenary session of the 75th Indian Science Congress in Pune recently. Prof. Rao said the three major tasks were to make superconducting materials of proper from and shape, find newer and better materials, and intensify research into this challenging field. He said research activities could be strengthened by universities as development of her superconductors would dramatically alter the quality of life.

Prof. Rao said among the applications were big magnets, levitation and nuclear magnetic resonance which had great relevance to modern medicine. India had to remain in the race for superconductivity as no other country will give it to us, he added.

Earlier he gave a detailed description of superconductivity, an important state of matter when materials do not offer resistance to passage of electricity or attain zero resistance. Prof. Rao detailed the experiments conducted by students at IIT Kanpur in the 1970s and at the Indian Institute of Science Bangalore.

Science Congress Recommends Mathematics Council

The platinum jubilee session of the Indian Science Congress held recently at Pune has recommended setting up of an Indian Council of Mathematical Sciences as a tribute to the great mathematician Ramanujam in the year of his birth centenary, to give thrust to the development of the subject. The Congress noted that mathematics education neglected so long needed priority attention. The Department of Science and Technology (DST) should be entrusted with the task of research in mathematics, hitheto the sole privilege of the Department of Atomic Energy (DAE).

The session also called for customs exemption for chemicals, biochemicals and other consumables required for research in educational research institutions.

It recommended that a National Institute of Physiology be set up to provide for researches of the frontier areas of rapidly advancing neuro physiology of behaviour and behavioural disorders and on the effect of electromagnetic field on human physiological aberrations. It added that such an institute could concentrate on the study of the influence of the mind in the healing processes through yoga and hypnotherapy indicating mind modulation over bodily processes.

The study of sports physiology for better performance in sports and athletics and up-to-date survey of the work on management of behavioural disorders has also been suggested.

Another national institute mooted is for psychology to promote sustained work in frontier areas identified as health, environmental sports, managerial psychology and inter-disciplinary and intra-cultural as well as cross-cultural understanding of the individual.

Educational infrastructure for Border States

A new scheme to strengthen educational infrastructure and provide job opportunities to people living in the border States of Gujarat, Punjab, Rajasthan and Jammu&Kashmir has been initiated by the Human Resource Development Ministry, Govt. of India. An amount of Rs. 200 crore has been earmarked for the scheme during the Seventh Plan.

The proposed educational programme is intended for the overall development in the border areas. In the current fiscal year, Rs. 25 crore is proposed to be spent on education under the Border Area Development Programme.

A sanction committee has been set up under the chairmanship of the Education Secretary to oversee implementation of the various programmes under the scheme. The committee includes representatives of the Planning Commission and the State Governments.

JNU Entrance Exam Accredited

The UGC has accredited the JNU Entrance Examination conducted all over the country for admission to M. Phil, M. Tech, Ph.D. programmes in the schools of Computer and Systems Sciences, Life Sciences, Environmental Sciences, Physical Sciences and the Centre for Biotechnology on par with the national educational testing (NET) examination conducted by the UGC for the award of junior research fellowship to candidates pursuing M Phil., M.Tech., Ph D programme in various science disciplines.

The decision has been made in pursuance of the report of the high powered committee appointed by the Commission consisting of Prof. P. M. Bhargava, Director, Centre for Cellular and Molecular Biology, Hyderabad, Vinod Gaur, Director, National Geophysical Research Institute and Mrs Archana Sharma of Calcutta for evaluating the standards of the entrance examination conducted by the JNU in over 24 centres all over the country for admission to M. Phil, M. Tech, Ph.D.

The accredition granted by the Commission for the present was for a period of three years.

As a result of the accredition of the JNU entrance examination for these schools, the candidates, joining these programmes in the schools of Computer and System Sciences, Life Sciences, Environmental Sciences, Phyical Sciences and Centre for Biotechnology on the basis of their inter-se merit in the all India entrance examination conducted by the University would become automatically eligible for the award of Junior Research Fellowship of the UGC without their having qualified the NET examination conducted by the UGC.

Centre for Science & Technology

An International Centre for Science and Technology Education is proposed to be set up by the Government to encourage experiments in science and technology.

The ICSTE has already been registered under the Societies Registration Act and is expected to start its activities by 1989. It will have aresource centre, a media centre a computer centre, a laboratory and a workshop.

The Human Resource Development Minister, Mr. P.V. Narasimha Rao, who is the Chairman of ICSTE, has nominated the Educational Adviser (Technical Education) as Member Secretary of both the Society and its Governing Body.

The Centre will provide an international forum for contacts between educationists, scientists, planners and administrators. It will also promote exchange of national groups of teachers and researchers.

Consistent with the National Policy on Education which lays stress on research as essential component of higher education, the proposed Centre will provide the infrastructure for research and development in various institutions.

The Centre will cover educational institutions in the technical education system which offer undergraduate and postgraduate programmes, namely, the Indian Institutes of Technology, the Indian Institutes of Management, the Regional Engineering and State Government colleges as well as other non-Government institutions and colleges approved by the All-India Council for Technical Education.

Courses in Environmental Science & Engg.

The Centre for Environmental Science and Engineering (CESE) at Indian Institute of Technology, Bombay, has recently introduced a short-term training programme for its graduates, enabling the IIT engineers to emerge as trained environmentalists.

The new course will be conducted in cooperation with Pollution Control Boards and various research and development institutions.

The CESE also proposes to introduce a five-year integrated programme on Environmental Science and Engineering (ESE). Entrants to this programme will be supported by interested industries enabling industry projects to obtain an IIT-Industry interaction.

In order to focus attention on environmental issues and to create awareness among technologists and scientists, some basic courses in environmental science and engineering were initiated at the undergraduate level in 1974. Later an inter-disciplinary M. Tech programme was started in 1977 and a doctoral programme in 1978.

Panel on Distance Education

The Government is reported to have set up a coordination council to look into the policies and utility of courses to ensure that uniform standards of distance education are maintained by the open universities.

The council, comprising the Vice-Chancellors of the Indira Gandhi National Open University (IGNOU), three State open universities and representatives of the Government and the University Grants Commission (UGC), has been mooted to avoid duplication of course materials and minimise the financial burden.

It is hoped that gradually IGNOU will assume the role of a central body coordinating and overseeing the activities of all the State open universities.

UNESCO Award for V.P. Singh

Dr. Ved Pal Singh of the Department of Botany, University of Delhi has bagged the UNESCO/ROSTSCA Young Scientist Award in the field of applied Microbiology and Biotechnology for 1987. The award has been presented to him for his work on calcium mediated macromolecular functions and growth of aerobic spore forming thermophilic actinomycetes--Thermoactinomyces vulgaris.

The annual award is given by UNESCO Regional Office of Science and Technology for South and Central Asia to the young scientists or engineers below 35 years of age in the field of Informatics and Application of Computers in Scientific Research, Applied Microbiology and Biotechnology and New and Renewable sources of Energy.

Kautilya Award Scheme

Ministry of Planning, Govt. of India, have launched 'Kautilya Award Scheme' to encourage writing of original books of high order in Hindi on technical subjects relating to planning. The following awards will be made under the scheme :

1st Award (One)	Rs. 5000/-
IInd Award (One)	Rs. 3000/-
Consolation Award (Two)	Rs. 500/- each

Original books/manuscripts relating to planning, printed/written in Hindi may be sent, in prescribed form, for consideration for award. Only those books and manuscripts would be accepted which have not received financial assistance or subsidy under any other scheme.

Authors desirous of participating in this scheme should send their manuscripts/printed books by 31st March, 1988 positively.

Details of the scheme, prescribed form and other information may be obtained from : Deputy Director (OL), Planning Commission, Yojana Bhawan, New Delhi-110001.

News from Agril. Varsities

Seed-cum-Fertilizer Drill

The University of Agricultural Sciences, Bangalore, has designed a sowing implement namely seed cum fertilizer drill to overcome some of the problems in production of groundnut.

This newly designed seed-cum-fertilizer drill for groundnut, which has many advantages over the conventional implement, helps farmers to sow simultaneously four rows of seeds along with fertilizer.

The local method of sowing groundnut requires one bullock pair with one local plough and three men, one to handle the bullocks, one man for seeds and one man for fertilizer application. This method opens only one furrow. The total cost of sowing at the present rate works out to Rs. 60 a day and the team could cover only ½ hectare per day.

The newly designed seed-cum fertilizer drill for groundnut (shoe type) requires a pair of bullocks and three men—one to run the bullocks, one for handling seeds and one for fertilizer. The cost per day of sowing at the present rate comes to Rs. 60. As the area covered is 1.25 hectares a day, the cost of sowing works out to Rs. 43 only. Further, it helps in the correct placement of seeds and fertilizers in the soil.

The total fabrication cost of the seed-cum fertilizer drill (shoe type) is Rs. 500 approximately. More particulars of this seed drill can be had from the Chief Scientist (Agricultural Engineering) Operational Research Project for Dryland Agriculture, GKVK, Bangalore-560065.

Colic Surgery

A team of Veterinary Surgeons of the Punjab Agricultural University performed, for the first time in India, a surgical operation on a 20-year old pony mare for the treatment of colic (Impaction of colon). The surgery was performed under general anaesthesia. Abdomen was cut open and the impacted colon was emptied and suctured back. The mare recovered on 12th day after the operation.

"Colic" is caused by having pain in the abdominal region of a horse which invariably kills the animal. The disease which is very common in horse is due to one of the following conditions : impaction, tympany, twisted guts, volvulus, intussusception, etc. and urinary problems. This operation has opened new vistas in the field of Veterinary Surgery. Many costly horses can thus be saved which otherwise would usually result in death and great economic loss to the horse breeders.

CALENDAR OF EVENTS

Proposed Dates of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
February 10-14, 1988	Workshop on Science and Technology	To initiate a dialogue for the interaction of the Government, industry, institutes and to update the present technology.	Department of Astronomy & Space Sciences, Punjabi University in collaboration with the Punjab State Council of Science & Technology.	Prof. H.S. Gurm, Director, Department of Astronomy & Space Sciences, Punjabi University, Patiala-147002
February 18-20, 1988	Dalit Literature	To review and reassess the role and relevance of Dalit Literature in building an alternative perspective on Indian social, political and cultural life.	Centre for Soical, Studies, South Gujarat University, Surat.	Prof. S.P. Punalekar, Centre for Social Studies, South Gujar University, Surat-395007
Feb. 29-March 2, 1988	Workshop on Internal Reorganization of English Honours Syllabi	To reorganize the English Honours syllabi to meet the specific needs of the students.	Department of English, Ramakrishna Mission Vidyamandira, Howrah	Mr. Sunanda Sanyal Director, Ramakrish Mission Vidyamandi Belurmath, Howrah.
March 10-12 1988	Nationalism : Problems and Challenge	To discuss different aspects of the development of nationalities during 19-20th centuries and their relationship with Indian nationalism.	Centre for Social Studies, South Gujarat University, Surat in collaboration with K.M. Munshi Centenary Committee, Gandhinagar.	Prof. Ghanshyam Sh Centre for Social Studies, South Gujar University, Surat-395007
May 9-June 4, 1988	Summer Course in Analysis and Probability	Topics to be covered are Probability Theory and Stochastic Processes, Fourier Analysis & Functional Analysis.	Indian Statistical Institute, Bangalore Centre.	T.S.S.R.K. Rao, In-charge, Summer School 1988, Stat-Math. Division, India Statistical Institute, R.V. College (P.O.) Bangalore 560 059
May 18-20, 1988	Conference on Recent Advances in Mathematical Techniques and Applications	Topics proposed to be discussed include Mathematical Physics, Mathematical Methods, Biofluid Dynamics, Chaos, Stability and Turbulence	Dr. Y.S. Parmar Institute of Mathematical Sciences, Shimla.	Dr. J.R. Gupta, Organising Secretary, Dr. Y.S. Parmar Institute of Mathematical Sciences, Hainault, Shimla-171002
July, 12-14 1988	International Symposium on Recent Advances in Male Reproduction	The Symposium will focus on Molecular Biology of Inhibin, Androgen Binding, Protein Regulation of Fertility, Peptides in Testis Function and Steroidogenesis in Testis	University of Hyderabad in collaboration with the Indian Society of Andrology	Prof. P.R.K. Reddy, School of Life Sciences University of Hyderabad, Hyderabad 50013
September 26-28 1988	International Conference on Welding Technology in Developing Countries	To provide an opportunity to scientists and technologists from developing and advanced countries to share their experiences in the area of Welding Technology.	University of Roorkee, Roorkee.	Prof. P.C. Gupta, Organising Secretary, International Conference on Welding Technology in Develop ing Countries, Department of Mech. & Ind. Engg., University of Roorkee, Roorkee-247667

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month' while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research scholars and students of education are welcome to use these resources. The Library is open from 9-00 a.m. to 5-30 p.m. Monday through Friday. Access can also be had through Inter library loan for which requisition must be made through your Librarian.

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2. Mishra, Arun. *Synonymy.* Delhi.
3. Pathak, Om Prakash. *Prayogika manovigyana : Puggala Pannatti ke paripreksh ya mein.* Delhi.
4. Soni, Sunil. *Fredrik Neetshe ke darshan mein Ishwar, Manushya aur Jagat sambandhi sam-pratyayon ka vartman sandarbh mein adhyayan.* Devi Ahilya. Dr. B. Khan.
5. Sukumaran, M. *The social philosophy of Sree Narayana Guru.* Kerala. Dr. K. Saratchandran.

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2. Choudhury, Shashikala. *Raja Rao's novels : A transmutation of philosophy.* IIT Delhi. Prof. M.P. Jain.
3. Das, Biswanath. *Sentence connection in English and Oriya : A comparative study.* Sambalpur. Dr. E.K. Tripathy.
4. Krishnan, A. *Emerson and Maraimalai Adigal : A comparative study.* Madurai.
5. Raghunandan, Lakshmi. *Contemporary Indian poetry in English with special emphasis on Nissim Ezekiel, Kamala Das, R. Parthasarathy and A.K. Ramanujan.* Bangalore, Dr. C.N. Srinath.
6. Rajan, C.K. *Language of the fictional writings of Mulk Raj Anand.* Kerala. Dr. Elias Valentine.
7. Sheela Sastry, Eswara. *The rabbit syndrome : The theme of entropy as devaluation of human worth in the major fiction of John Updike.* Andhra.
8. Vaidyarathan, Nirmala. *Vision and design in the novels of Willa Cather.* IIT Delhi. Dr. (Mrs) Sunita Jain.

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2. Jain, Sushma. *Acharya Amitgati : Ek anusheelan.* HS Gour. Dr. B.C. Jain.
3. Parashar, Kanhaiya Lal. *Vedic vangmai pappu mimansa.* Panjab.
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4. Gupta, Munnidevi S. *Acharya Chatur Sen ke ka sahitya ka sanskritik anusheelan.* Nagpur. Dr. Hanum Naidu.
5. Indapurkar, Lata Dattatraya. *Sathhottari Hindi Gujarati kahaniyon mein nari jeevan.* Baroda.
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In Celebration of the Book

'Whatever mankind has done, thought, and achieved is found in the magical pages of the books', said Thomas Carlyle. Maxim Gorky went a step further when he reminded us that 'whatever man has done, and is doing, is an expression of his soul. His art and science manifest his noble instincts. They become forceful and vital when they are embodied in books. Jean-Paul Sartre summed it up when he said 'Whatever is written is an image of our society'. Books are indeed an expression of our perceptions. Education aims at arousing the potentialities of the human mind to channelise them to productive uses. Books help accomplish it in the best possible manner.

Ralph Waldo Emerson said, ' 'Tis the good reader that makes the good book'. And we do not seem to be good readers The plain truth is that we do not lay much stock by the books. It is common knowledge that students and teachers spend minimal time in the library. We just refuse to appreciate how much better students would be were they able to use more skilfully the library facilities. Of course many teaching staff are themselves unskilled in library use. It is surprising how many of them rarely seem ever to be in the library themselves. But are our libraries free from the blame? Are not most of them aflicted by the custodial approach of the library personnel that reflect little of information services? Have we not forgotten the dictum handed down to us by Socrates: 'A library should not be the shrine for worship but should be the delivery room for birth of new ideas'? Are the libraries inviting enough that the students and academics should feel impelled to visit by the creative dynamic attitude of the professionals to be helpful? These are some of the questions that require to be faced if we are to find an effective answer to the almost absent, or sharply declining, reading habit. What is called for is not only adequate funds be injected into the libraries but also an objective audit of their performance.

If the scourge of illiteracy bothers the nation it is equally alarming to note that the educated are functionally illiterate. Either the books that they need are not available, and if at all they are available, they are just not accessible. This situation is a clear pointer to the absence of a system of living, vibrant libraries. According to a recent Unesco study the rate of growth of literacy in our country is one per cent per year. Assuming that the population will remain constant, we will need atleast another 66 years to be a liter
nation. And who does not know that making
assumption is nothing but an exercise in self dec
tion. What is needed is an effective public libr
system. We have neglected our libraries for too lo
One is only to look into the reports of various co
mittees and commissions and the scarce mention t
the libraries find in them to convince one self. I
hard to reconcile this situation with the emphasis
New Education Policy places on the expansion
formal, and particularly non formal education. I
all we want to push up the literacy rate, and
serious in our plans to expand educational opp
tunities, we have to back them up by a network
libraries set up through effective library legislati
Achievements of Cuba, Turkey, Iraq, etc. in banish
illiteracy show us the way that literacy drives
successful only when the literacy centres are bac
up by adequate library provision.

Books have been under constant attack. So
times from intolerant governments that are afraid
books and proscribe them. They often forget, r
ignore, the words of John Ruskin. 'If a book is wo
reading, it is worth buying'. However, a more seri
challenge to the embattled book comes from the te
vision and other electronic mass media. These ha
encroached upon whatever little time we can affo
for reading in the fast life of today. Everyone is co
vinced that though television is a better media
entertainment, it is the book that holds its own in
performance of the educational function. One w
also agree that properly handled, television can
more of a friend only if we were to improve our p
grammes and design them to promote the readi
habit. It could be easily done through programm
introducing upcoming authors, reviewing books a
presenting book abstracts.

We are assured that the future of the book
rather secure against the onslaught of microfor
publications because of its inherent strength reflect
in the convenience of its use. It is in celebration
the invincibility of the book that we dedicate t
special issue of University News to the 8th New De
World Book Fair being organised by the Nation
Book Trust, India in collaboration with the Federati
of Indian Publishers and other book trade orga
sations from 5th to 15th February, 1988.

National Book Trust and the Publishing Scene in India

Anand Sarup*

Like everything else in India, the Publishing Scene so presents sharp contrasts, with a few, selected eautifully printed, exquisitely illustrated and unbelieably expensive books in English at one end and cheap, mudgy, poorly bound paperback novels with formula ixture of mystery, romance and violence at the other nd of the spectrum. As in so many other spheres, e evidence of the existence of the technical capaility to produce almost anything of any quality is here but somehow, it comes into play to a very mited extent because most publishers can survive uite easily by swimming along the current or functioing within a protected market producing approved extbooks for schools, reprints of or commentaries on eligious and literary classics, titles on scientific or ocio-economic research commissioned by National odies like the I.C.S.S.R., I.C.H.R., etc. and limited ditions of a few other books by new authors despeate enough to meet the cost of production.

While the above is a reasonably objective thumb ail sketch of publishing in India, one must admit hat there are many publishing houses who have been enturing out of their protective cocoons to promote ew authors, explore hitherto untouched areas and roduce informative and interesting books on the flora nd fauna, the cultural diversity and the socio-political ssues facing the country. Notwithstanding the efforts of a few imaginative publishers, must give in to the inertia of the situation because the market for books is determined largely by an inert educational and literary environment, characterised by tremendous inequalities not only between the educated few and millions of illiterate masses but also by a skewed pattern of income distribution and a continuing dependence on foreign publishers for new books for the elite institutions. Even today, an author "arrives" in India only when he or she is published by a foreign or multinational publisher. The static situation in Indian publishing is best illustrated by the fact that even though the overall demand and consumption of paper has been going up from year to year, the demand of paper for book production has not been registering a significant increase over the last decade.

As an intellectual visionary imbued with the zeal to invigorate the socio-cultural and political environment with new initiatives and ideas, Jawaharlal Nehru felt that it would be impossible to nurture and sustain the process of India's multi-faceted development without education or books. As an author who had popularised ideas on a wide range of subjects through his works, brought out by foreign publishers, Jawaharlal knew the limitations of Indian publishers. That is why, he established the National Book Trust, India, in 1957, to produce and to encourage the production of good literature and to make such literature available at moderate prices to the public.

That the National Book Trust, India, would not be a mere publishing house but would play an interventionist role with reference to publishing, distribution as well as the nurturing of the tastes of readers of all the Indian languages was made clear by laying down that it would, *inter-alia* : undertake the publication of outstanding works of Indian authors in Indian languages and their translation from one Indian language to anthor, take up the translation of outstanding foreign books, bring out books for the popularisation of modern knowledge; and, in addition, take steps to create a broad-based awareness and interest in diversified reading and publishing throughout the country.

Undoubtedly, quantitatively and qualitatively, the performance of the N.B.T. leaves much to be desired. This does not mean that the Trust has been either wholly inactive or entirely oblivious of its multifarious responsibilities. It has so far produced more than 2700 titles which are reasonably priced and cover a wide variety of topics, in English and in 12 Indian languages.

The Trust can justifiably lay claim to having promoted the publication of over 800 university level technical textbooks by Indian authors on a variety of subjects through a unique scheme which, despite its many operational bottlenecks, has given its authors a level of financial returns quite unusual in the annals of Indian publishing. It has also done a great deal in the field of childrens' literature. Under the Nehru Bal Pustakalaya Series launched in 1969 to promote national integration and foster a sense of unity and

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**Chairman, National, Book Trust, India.*

oneness by providing common reading material in regional languages, to children all over India, the N.B.T. has brought out over a hundred titles on history, folktales and festivals, the freedom movement, science and technology, life and works of outstanding Indians, excerpts from the works of great Indian writers and lately, some books for pre-school children, aimed at creating awareness of books as enjoyable objects of exploration and possession.

Other areas in which the N.B.T. has made a unique contribution are : the publication of popular books about the land and the people of India, National Biographies, Popular Science and, of course, Aadan Pradan, a unique series meant to provide translation of notable titles of one language in as many other Indian languages as possible.

Anyone familiar with the publishing scene will admit that the N.B.T. has been venturing in areas in which there is a void. He will, however, also complain that, through its own publishing programme, the Trust has not had the desired impact across the country. Moreover, it has failed to act as a catalyst of Indian publishing largely because it has shied away from taking risks on a scale commensurate with the size of the undertaking. It cannot be denied that many of its activities, whether in the field of publishing or for promotion of publication and the book-reading habit are being carried on below the minimum threshold required for registering an appreciable impact in a country of India's variety and dimensions.

Perhaps, for the first time, the N.B.T. India, is assuming, during the 8th New Delhi World Book Fair, its true role of a catalytic agent of Indian publishing. In addition to providing facilities for the display of foreign and Indian books, the Trust has invited a large number of authors, voluntary agencies, language associations, State academies, educational planners, etc. to interact informally with each other and to participate in two Seminars and two Workshops being organised to discuss (a) "Publishing in the Electronic Age with Special Reference to Developing Countries"; (b) "Need and Availability of Textbooks for the Higher education Sector in India"; (c) "Production, Publication, Distribution and Marketing of Reading Materials for Continuing Education of Neo-literates and School Drop-outs"; and (d) "Developing Curricular Strategy for Talented Children". Even more important than the planning of these Seminars and Workshops is the fact that all these activities are being undertaken with the co-sponsorship of almost all the major agencies—the U.G.C., the I.C.A.R., the A.I.C.T.E., the Council of Medical Education and the Ministry of Hum Resource Development—concerned with the world education, publishing and readership.

It is difficult to predict the outcome of either t 8th New Delhi World Book Fair or the Seminars a Workshops being organised under its auspices. O thing, however, is clear. By the very process of involvement with the implications of the New Educati Policy for the production, publication and distributi of books of various genre required to meet the nee of different economic, linguistic and education groups, the National Book Trust will inevitably unde go a change of character. Having identified the hiat between needs and availability of various types books, it will be forced not only to assume some ne tasks but also accept the responsibility for evolvi mechanisms to assist the publishing industry to acce the challenges and opportunities inherent in an educ tional renaissance in India.

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Birth of the Book Fair in India

K. S. Duggal*

A book fair is not just an exhibition of books, big small. It is a commercial event organized with a ew to providing an opportunity to publishers and stributors to negotiate copyright arrangements in spect of translation, reprint, bulk purchase, etc., of ooks. It has a fixed periodicity and as far as possible held at the same venue. It is accompanied by other vents like bookweek, seminars, symposia, workshops imed at promoting writing, translation, designing, ublishing and distribution of books. It may also ave some entertainment features in the form of ultural and other programmes. Retail sale of individual copies to visitors has a low-priority in a book air. In fact, it is not permitted in some of the international book fairs like the one at Frankfurt.

I have taken pains to say all this because writing on the subject some time ago when I stated that the irst ever book fair was held in 1966 at Cross Maidan, Bombay, someone challenged it referring to an All India exhibition of books, held in New Delhi earlier in 1954 as its precursor. An exhibition which is, at best, an exposition of books has to be distinguished from a book fair.

The Book Fair is, perhaps, the most important annual event of the publishing community in India. The credit for conceiving the idea must go to Dr. B. V. Keskar, Chairman, National Book Trust, India, for over a decade. Dr. Keskar, a man of vision and wisdom, was an inveterate idealist. His contribution to broadcasting in India remains unmatched (though regrettably not quite adequately appreciated so far). The stewardship he provided to the Book Trust is an abiding tribute to his love for books and his anxiety to foster bookmindedness in the country.

Dr. B. V. Keskar believed that more than publishing books the National Book Trust should devote its resources to making people read and purchase more and more books. This is what Jawaharlal Nehru dreamt of when he set up the National Book Trust. He wished to make people book minded and thereby foster a scientific temper in the teeming millions of India.

As Chairman, National Book Trust, Dr. Keskar visited the Frankfurt Book Fair. He was then invited by the British Council to visit the UK when he had an opportunity to discuss with his counterpart in England how best an organisation like the Book Trust could serve the community. The message he brought was that the Trust should devote itself more and more to promotional activity and less and less to publishing. The Trust must try and fill the publishing gaps. It should, as far as possible, supplement publishing in the private sector in India.

This gave birth to the concept of the book fair as an instrument of exposing people to reading materials. It was from this that the idea of regional exhibitions sprouted. It was from here that the Trust stepped on to organising a World Book Fair in 1972. Visiting the World Book Fair held in New Delhi, Dr. S. Taubert, the then Director of Frankfurt Book Fair, observed, 'It is to be seen to be believed !' It is maintained that it was the most glorious moment in NBT's history. The Prime Minister of the day who had earlier regretted her inability to find time to inaugurate the Fair sent word and visited the Fair, spending the entire evening going round the stalls.

However, when the crowds thronged the Fair Premises in Windsor Place in the Capital and the national press was agog with its praise, as Director of the Fair, I was reminded of 1966 when hardly a few months after my taking over the Trust, I was entrusted with the responsibility of organising the First National Book Fair. The Chairman of the Book Trust, Dr. B. V. Keskar, was away in the UK when the proposal was put up to the Trust's governing council for financial sanction. I vividly remember the morning. In Dr. Keskar's absence, Shri Bhagwati Charan Verma, the seniormost member of the Trust, was in the chair. The late Mr. P. S. Jaysinghe of Asia Publishing House and the late Shri Romesh Thapar who a few years later headed the National Book Development Board tore the proposal to pieces. Mr. Jaysinghe, the most leading publisher in the country, who had been participating in the Frankfurt Book Fair year after year, said that the concept of the book fair was essentially alien to Indian publishing. It would never succeed. 'And how could you display a fragile thing like a book in an improvised stall or exhibit it in a temporary pavilion erected for the purpose ?' he

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asked me again & again. Shri Romesh Thapar seemed to agree with Mr. Jaysinghe entirely. It hurt me deeply because I looked upon Shri Thapar as a progressive and a man of independent thinking. But it seemed he had been completely won over by Mr. Jaysinghe. After a long debate, it was felt that since the Trust Secretariat had already made commitments in consultation with the Executive Committee, we might try out the idea on an experimental basis. But I was told in no uncertain terms that if the fair was a flop, I should be prepared to face the consequences. Dr. Keskar being away, the responsibility was entirely mine.

I accepted the challenge. Something in me said that they were being unnecessarily sceptical.

The Fair was held on a 90,000 sq. ft. plot requisitioned at the Cross Maidan, Churchgate, Bombay for the purpose. The exhibition pavilion covered an area of 10,000 sq. ft. and the rest was earmarked for stalls, auditorium, office and lounge, etc. One hundred and fifty stalls, each 8 by 8 ft., were erected and rented to the trade.

The main attraction of the Fair was the exhibition of 8,000 selected books in various Indian languages, including English, published in India since January, 1964. There were about 2,400 books in Hindi, 2,000 in English, 735 in Marathi, 535 in Gujarati, 410 in Bengali and 1780 in other Indian languages such as Telugu, Tamil, Malayalam, Kannada, Assamese, Urdu and Punjabi.

An exclusive section of the pavilion, which turned out to be one of the most popular, displayed an array of choicest children's books.

The stalls were rented out to both Indian and foreign publishers or their agents, diplomatic missions and other agencies related to the book trade. Books could both be displayed and sold in the stalls. They were decorated tastefully and did brisk business.

The Fair was inaugurated on the 5th November, 1966, by Shri Nityanand Kanungo, the Governor of Gujarat, in a tastefully decorated auditorium. Addressing a distinguished and representative gathering, Dr. B. V. Keskar, in his welcome speech, explained the significance of the National Book Fair and described the Fair as the first ever biggest effort made for the promotion of books and publishing in South Asia.

The Book Fair also provided an appropriate setting for conventions of publishers and booksellers which were held under the auspices of the Federation of Publishers & Booksellers Associations in India. Dr. Rafiq Zakaria, Maharashtra Minister for Urban Development, presiding over the inaugural meeting, expressed his conviction that Indian publishing had a bright future. He said that people's hunger for more reading material was on the increase as was evident from the large crowds that the Book Fair was attracting. Important problems relating to book distribution were discussed freely and frankly. The Akhil Bharatiya Hindi Prakashak Sangh also held its Convention on the premises of the Fair. Shri Amrit Lal Nagar, the renowned novelist, presided. On this occasion, an exhibition of about one hundred and fifty manuscripts of outstanding Hindi authors was arranged by the Kashi Nagari Pracharini Sabha. Inaugurating the exhibition of manuscripts, Shri Mahavir Adhikari, the then Editor of "Nav Bharat Times", urged the publishers to give a better deal to writers.

There were, in all, eleven literary and cultural programmes held in the Fair auditorium during the Book Fair each evening being devoted to one Indian language.

The series of cultural programmes was inaugurated by Shri Ramdhari Singh "Dinkar," the noted Hindi poet.

On the concluding day of the Fair, i.e. 20th November, awards were given to the two most outstanding stalls. The awards were given away by Shri Raj Bahadur, Minister for Information and Broadcasting, Government of India.

A Book Week was observed during the Book Fair from 8th November to 14th November throughout the country. Publishers and booksellers displayed book week posters produced by the Trust and allowed a special discount on books purchased during the Week. As many as six trade journals brought out special supplements. The entire network of All India Radio put across a large number of broadcasts relating to the Week and important newspapers like the Hindu (Madras), The Times of India, The Indian Express and the Blitz carried special articles aimed at fostering bookmindedness. All India Radio and the Publishers' Association celebrated the Book Week with conventions, seminars and exhibitions in almost all the important town of Northern India like Allahabad, Varanasi, Lucknow, Jaipur, Udaipur, Jodhpur and Patna. In Varanasi essay competitions were held in educational institutions and prizes given to those who had drawn the largest number of books from the libraries of their respective institutions during the year. The National Book Trust distributed several thousand posters in English and Hindi highlighting the importance of the Book Week.

Several publications were brought out by the Trust and other organisations in connection with the National Book Fair. The Trust published a catalogue of books exhibited together with a book-mark which was distributed free to visitors to the Fair. The Federation of Publishers and Booksellers Associations in India published a handsome volume by way of a souvenir which contained a number of useful articles on the various aspects of the book trade in India and a review of publishing activity in various Indian languages. The Akhil Bharatiya Hindi Prakashak Sangh brought out a pamphlet in Hindi advising their constituents about the way the Book Week was to be celebrated.

By all accounts, the Fair was a remarkable success. It went a long way in fostering bookmindedness in the country. The press, the book trade and the book lovers all hailed the idea of the National Book Trust organising a fair like this and expressed the hope that it would become an annual feature of the activities of the Trust. The Trust received an invitation from the Publishers and Booksellers Association of West Bengal inviting it to hold the next Fair in Calcutta.

This is how the National Book Fair became a regular feature of the Trust activity. Fairs were held at Delhi, Calcutta and Madras culminating in the World Book Fair in 1972 declared by UNESCO as the Book Year.

It was proposed to hold the World Book Fair at the Feroz Shah Kotla Grounds, New Delhi. But owing to Emergency on account of the war with Pakistan, the Fair had to be postponed. Soon after the war was over, it was decided to reschedule the Fair to be inaugurated on March 18. Since the original site at the Feroz Shah Kotla Grounds was not available during the months of March-April, 1972, the Fair had to be moved to Windsor Place, a site smaller in area, but perhaps an improvement on the previous site since it was more centrally located.

Because of the new site and changed dates almost every detail of the project had to be planned afresh. Work started on 15th February 1972, leaving the contractors barely five weeks to execute 4,592 sq.m. of covered space and another 2,198 sq.m. for a large number of participants to build their pavilions.

The assignment was that a pavilion of 2,809 sq.m. in area with a number of ancillary buildings of a type that would provide an intellectual environment had to be put up all in temporary construction when the President of India would inaugurate the Fair on March 18th, 1972, in the presence of an international gathering.

Apart from the main pavilion, a number of well-known publishing houses undertook to construct their own pavilions for which well-demarcated open plots were allotted. They provided an attractive synthesis with the main pavilion and as the scale and grandeur of the main pavilion kept on unfolding, the private pavilions did not lag behind to impart the best artistic touches to their final finish. The interior designing of those pavilions was also tastefully done and attractive styles of book-displays were seen in the pavilions. In perspective, an effect of total elegance was achieved in the architectural style of the entire Fair, and even when the construction was temporary, it projected an image of a rich performance. The facade of the Fair revealed itself in all its simple but striking elegance on the Janpath side, while the ancillary pavilions could be seen stretching towards Ashok Road, each in its unique architectural style and finish.

The Fair was inaugurated by Shri V. V. Giri, President of India, on 18th March at 5.30 p.m. at an impressive function attended by more than 3,000 guests including Prof. S. Nurul Hasan, Minister of Education and Social Welfare, Members of Parliament, diplomats, foreign delegates, authors, publishers and book lovers.

Since 1972 was also being celebrated as the twety-fifth year of India's Independence, one of the highlights of the Fair was an exhibition of outstanding books published in the various Indian languages and in English since India became independent. In this Exhibition nearly 10,000 books in Hindi, English, Bengali, Gujarati, Kannada, Marathi, Tamil, Telugu, Punjabi, Malayalam, Urdu, Assamese, Oriya, Sindhi and Sanskrit were displayed. There were special sections for children's books and paperbacks.

In the International Sector of the Book Exhibition, books on India published in some of the friendly countries were displayed along with a few publications marked for their excellence in printing and production. A large number of foreign countries sent some of their outstanding books for display in this sector. These included the UK, the USSR, the USA, France, the GDR, the Federal Republic of Germany, Switzerland, New Zealand, Hungary, Italy, Greece, Iran, Czechoslovakia, Spain, Sri Lanka, Cambodia, Malaysia, the Democratic People's Republic of Korea, Turkey, Afghanistan, Kenya, Tanzania and Zambia.

Provision was made for publishers both in the public and private sectors to rent stalls or set up their own pavilions where they displayed as well as sold their books. Publishers representing several foreign countries including those from the UK, the USSR, the USA, France, the Federal Republic of Germany, the German Democratic Republic, Ireland, Japan, Hungary, Yugoslavia, Czechoslovakia, the Democratic People's Republic of Korea, Iran and Bangladesh participated. WHO and the Publication Bureau of UNESCO (Paris) also joined. A number of foreign publishers came to the Fair to man their stalls.

Over a hundred Indian publishers rented stalls or put up their own pavilions where they exhibited and sold their publications. Provision was also made for economic stands for members of the Federation of Publishers and Booksellers Associations in India. A number of State Governments (Punjab, Madhya Pradesh, U.P., Andhra Pradesh, Tamil Nadu, Kerala, Maharashtra, Orissa, West Bengal and Assam) participated in the Fair. Also several public sector organisations (the publications Division of the Ministry of Information and Broadcasting the Publications Branch, Government of India, the Council of Scientific and Industrial Research, the Indian Standards Institution, the Indian Science Academy and the Indian Council of Agricultural Research and others) joined in a big way. The various organisations under the Ministry of Education and Social Welfare were housed under one roof in an exclusive pavilion.

During the last three days, a Book Bazar was organised on the precincts of the Fair where books were sold by publishers at reduced rates. It was a tremendous success and attracted large crowds.

Shri G.S. Pathak, Vice-President of India, gave away awards to the best designed stalls and the best produced jackets in a function held in the Imperial Hotel.

While finalising the programme of the World Book Fair, it was decided to organise an International Seminar on 'Books for the Millions' during the Fair. The Seminar was aimed at presenting a wide spectrum of opinions and information on the production of paperbacks and related problems. The papers and discussions were to set in perspective their importance in spreading knowledge and providing entertainment to readers. The participants of the Seminar drawn both from the developed and the underdeveloped countries were invited to examine the subject from the point of view of its origin and history, copyright problems, sales and how they affected authors etc. They were also to study the implications of paperback production for developed countries which produced large numbers of them, and for developing countries which were keen on producing their own inexpensive books.

A standing committee was nominated to look after the organisation of the Seminar. The committee decided upon the following eight sessions spread over three days :

1. Paperbacks—a Historical Survey.
2. Paperbacks and Copyright Problems.
3. Paperbacks and the Author.
4. Production of Paperbacks.
5. Distribution of Paperbacks.
6. Paperbacks in Developing Countries.
7. Paperbacks and Hardbounds.
8. Cooperative Publishing.

Shri Dina Nath Malhotra, Managing Director, Hind Pocket Books (P) Limited, was nominated Technical Director of the Seminar. The Seminar was formally inaugurated by Dr. Prem Kripal, the then Chairman, Executive Board of UNESCO.

A National Writers' Camp was held during the World Book Fair from March 26 to 31, 1972. The Camp was inaugurated by Shri Y.B. Chavan, Union Minister of Finance. In this 93 eminent writers in various Indian languages and in English participated.

With a view to giving to readers an opportunity to meet their favourite authors, Meet the Authors' sessions were held in which writers spoke about their art and philosophy, followed by discussions between the authors and the audience.

Synchronising with the World Book Fair a Book Week was celebrated throughout the country from March 18 to 24. An extensive publicity campaign was launched to foster bookmindedness during this period. Universities and other educational institutions, libraries and cultural organisations celebrated the Book Week appropriately to create an atmosphere in which people purchased and read more books. The Federation of

Publishers and Booksellers Associations in India allowed a special discount of 10% on books purchased during this period. AIR network organised special broadcasts and the P & T Department cancelled postal articles from the principal cities with a slogan of the Week in English and Hindi. The Trust brought out an attractive poster with the Slogan of the Week and distributed it to the educational and cultural institutions in the country for display.

A series of cultural programmes was organised in ballroom of Hotel Imperial for foreign and Indian guests participating in the Fair. The programmes started on March 19, 1972 with a shehnai recital by Ustad Bismillah Khan and party. Vedantam Satyanarayana and party gave a Kuchipudi dance recital on the 20th. Ustad Amjad Ali Khan presented a recital on the sarod on the 21st. Pt. Sampta Prasad accompanied him on the tabla. On March 22 Km. Padma Subramaniam of Madras presented a dance recital. Children of some foreign countries along with Indian children presented a variety programme on the 23rd observed as the International Children's Evening. All India Radio's National Orchestra gave a programme of orchestral music on the 24th. On the 25th Dr. Lakshmi Narayan Lal's Hindi play Suryamukh was produced by Prof. E. Alkazi. April 1 featured an interesting 'Mushaira, Kavi Durbar and Kavi Sammelan with leading poets in Hindi, Urdu and Punjabi participating in it. The cultural programmes were a remarkable success.

An All India Publishers Convention was organised by the Federation of Publishers and Booksellers Associations in India on March 23, 1972. The Convention was inaugurated by Shri Kanti Chaudhuri, Joint Secretary, Ministry of Education and Social Welfare, Government of India, and was attended, besides publishers and booksellers in the private sector, by representatives of publishing organisations in the public sector, librarians and others interested in books. There was a lively discussion on 'The Public and the Private Sector in Publishing.

The Federation of Publishers and Booksellers Associations in India organised two training courses, one for 'Publishing Management' and the other for 'Book Promotion and Distribution'. The courses were directed by Shri O. P. Ghai, President and Shri M.N. Rao, Past President of the Federation, respectively.

The Indian Library Association had the privilege of having President V.V. Giri to inaugurate the 19th All-India Library Conference on March 24, 1972 on the premises of the Fair.

The Indian National Science Academy organised a discussion on 'Production of Books on Science' on March 31, 1972. Prof. B.R. Seshachar, President of the Indian National Science Academy, and about 50 delegates participated in the discussions. The Akhil Bharatiya Hindi Prakashak Sangh organised a seminar on 'Popularising Hindi Books Abroad' on April 1. The Seminar was inaugurated by Shri D.P. Yadav, Deputy Minister of Education and Social Welfare, under the chairmanship of Dr. B.V. Keskar, Chairman, National Book Trust, India.

The Sangh also held a symposium on 'Paper Scarcity in India', which was inaugurated by Shri Siddeshwar Prasad, Deputy Minister of Industrial Development.

The Association of Master Printers organised an All India Convention of Printers under the chairmanship of Shri Guha Ray, to discuss problems of mutual interest.

A symposium on 'Communication Across Frontiers' was held on March 21. The participants in the symposium were : Dr Satish K. Arora, Fellow of the Indian Council of Social Science Research, Prof. M.L. Sondhi, Associate Professor in the School of International Studies, Jawaharlal Nehru University, Shri Satish Saberwal, Fellow, Indian Institute of Advanced Study, Simla, Shri L. Shivalingappa, Research Scholar, Jawaharlal Nehru University, Smt. Amita Malik, eminent journalist and Shri Ashok Davar, a journalist from the USA. Shri Ashok Mitra, Secretary, Planning Commission, acted as the Chairman of the Seminar.

The following countries participated in the Fair in one capacity or another: Afghanistan, Bangladesh, Sri Lanka, Czechoslovakia, Cambodia, France, the Federal Republic of Germany, Greece, the German Democratic Republic, Hungary, Italy, Ireland, Iran, Japan, Kenya, Mauritius, Malaysia, Nepal, New Zealand, North Korea, Poland, Switzerland, Spain, Tanzania, Turkey, the USSR, the UK, the USA, Yugoslavia and Zambia.

An extensive and well coordinated publicity campaign was launched months before the commencement of the Fair. Ten thousand copies of attractively designed World Book Fair posters were distributed to all important educational and cultural institutions in New Delhi and principal towns all over the country. Hoardings were installed at strategic points and cinema slides released in the leading cinema houses in the city. Over a hundred buses in Delhi and New Delhi carried the World Book Fair advertisement from March 1 till the

Fair was over. Nearly 10,000 beautifully designed car-stickers were distributed in Delhi, Bombay, Madras and Calcutta.

The Posts and Telegraph Department cancelled postal articles with the inscription World Book Fair and the slogan "A Good Book is a Good Friend" during the Fair in 23 important cities.

The Radio network and TV provided extensive coverage to the Fair activities by broadcasting a variety of programmes before and during the Fair. The commercial services of All India Radio carried the Fair advertisement for about three weeks at peak listening hours. The Films Division gave appropriate coverage to the inauguration of the Fair by President V.V. Giri and other important functions in the newsreels.

The press noticed the activities of the Fair liberally. The following newspapers and journals brought out special supplements on the occasion: The Statesman, The Times of India, The Indian Express, The Patriot, The National Herald, The Motherland, The Amrita Bazar Patrika, The Aaj, The Illustrated Weekly of India, The Economic Times, The Contemporary Indian Literature, The Educational Reporter, The Surge, The Point of View, The Dinman, The Thought, The Prakashan Samachar, The Natrang, The Pustak Parichay, The Sanchetna, The Entertainer, The Tarun Bharati, The Consumer Gazette, The Nilachar, The Indian Book Industry, The Round Table, The Mainstream, The Socialist India, The Link and The States.

Due to an unprecedented response from visitors, the Fair was extended by two days upto 4th April. Nearly 2,00,000 visitors visited the Fair. Among them were the President, the Vice-President, the Prime Minister, Union Cabinet Ministers, the Maharani of Sikkim, State Governors and Ministers, Diplomats, foreign delegates, authors, publishers, librarians, teachers, students and others.

The number of books displayed in the Fair was 2,00,000 of which 10,000 books in all the Indian Languages and English were displayed in the National Exhibition. A number of foreign delegations participated in the Fair.

(1) Delegates from USSR
(2) Delegates from GDR
(3) Delegates from East African Countries
(4) Delegates under UNESCO Grants

UNESCO placed two grants of $2000 and $5000 at the disposal of the Trust. The grant of $2000 was made at the Trust's suggestion to enable them invite Dr Sigfred Taubert, Director, Frankfurt Book Fair, and the other grant of $5000 was for the purpose of inviting publishers from some other countries to visit the Fair.

The birthpangs of the Book Fair were agonising but it turned out to be a bonnie baby. It has since grown into a fine institution which is the pride of India's publishing community. The Trust continues to organise a World Book Fair every alternate year. The National Book Fair is an annual event. The year in which the World Book Fair is held, the National Book Fair is merged in it.

The uncertainty and the unseemly controversy that preceded the Eighth World Book Fair is nothing new. Almost every fair held is menaced with one controversy or the other. The publishing community in India being split in splinter groups, it falls to the lot of the National Book Trust to carry them all together tactfully and provide them a common forum. More than anything it is an important contribution of the book fair to the world of books in India. ☐

UNIVERSITY OF POONA
Advt. No. 59 Dated : 14-1-88
LIST OF UNIVERSITY PUBLICATIONS

Sr. No.	Name of the Book	Price Rs.
1.	Female Divinities in Hindu Mythology and Ritual—by S.K. Lal	125/-
2.	A Survey of the Pre-Sankara Advaita Vedanta—by M.T. Sahasrabudhe	25/-
3.	God as the Supreme Value by—Leela D. Gole	20/-
4.	Central Places in Western India by—Jaymala Diddee	171/
5.	Pastoral Symbolism from the Rigveda —by S.A. Dange	15/
6.	"I" in Science, Religion and Everyday Life—by Dr. V.G. Bhide	6/
7.	Federal Element in the Indian Constitution—by H.R. Khanna	20/

Number of books have also been published by th University. Suitable discount will be given to th Booksellers, Libraries, Educational Institutio and individuals working in Educational Institution For free catalogue, please write to the Registra University of Poona, Ganeshkhind, Pune-411 007

BOOK DEVELOPMENT IN INDIA

J.C. Sharma*

Introduction

Indian publishing has shown steep progress since the independence of the country. India is among the 8 largest book producing countries of the world and publishes books in English as well as various Indian languages in a variety of subjects. It is creditable on the part of Indian publishing industry that it ranks 3rd after USA and UK in the production of English titles.

Prior to our independence, publishing in India was limited in its scope and was controlled by a few publishing concerns many of whom were subsidiaries of multinational publishing houses. These publishers were mostly concerned with educational books. As educational system was based on the British model, there was hardly any scope for local book industry to grow. Book publishing thus grew alongwith national conscience after attaining independence. After independence, there was a tremendous expansion of education as well as educational institutions. With the growth of education the need for more books also grew. Indian publishing industry (both private and public sector) rose to the occasion to meet the growing need for books.

School Textbooks

Almost all the books used for school education are indigenous. With a view to provide good and economic books to school children, almost all the State Governments have nationalised textbooks and have set up Textbook Boards. The National Council of Educational Research and Training (NCERT) helps State Governments in getting the books assessed to constantly improve their quality. NCERT is also producing textbooks specifically for schools affiliated to the Central Board of Secondary Education. The State Governments may also adopt these textbooks. The prices of these textbooks are intended only to cover the actual expenditure incurred on material, printing, overheads etc. Besides, NCERT also brings out supplementary reading material in different areas such as India's cultural and literary heritage, development in science etc. However, school textbooks produced by the public sector are not adequate to meet the national requirements. It is estimated that out of 13,000 books in the use, all over india, only 1000 are nationalised books. In order to fill up this gap, educational institutions have to depend upon textbooks prepared by private publishers.

It has been stated in the report on 'National Book Policy' brought out by the National Book Development Council that it is educationally unsound to prescribe a single textbook for all students in a class. It has been recommended that a single textbook situation need to be remedied with the production of more than one textbook in each subject in regional languages so that students and teachers have a choice from available books. Near absence of educational literature for technological education in regional languages for secondary and higher secondary level need be remedied. The agencies, expertise and resources of private sector may be fully availed of in the production and distribution of such literature.

University Level Books

University level books have been mostly with the private publishers and original university level textbooks are being produced suited to the needs of our students. These textbooks are quite popular in many developing countries as they are more readable for them. The Govt. have sponsored the following schemes for making textbooks for university level courses available at reasonable prices :

I. University Level Books from Abroad

In cooperation with the Govts of UK, USA and USSR schemes have been initiated to make available to Indian university students standard books at low prices. The books supplied are those approved by Government. Books from UK and USSR are reproduced in those countries and marketed in India through commercial channels. The approved USA books are published in India with a USIS or USAID Subsidy from PL-480 Rupee holdings in India. The freedom of universities to use or not to use these books is left unhampered. Under these programmes, about 1620 American, 720 British and 550 Soviet books have been published so far. Latest editions of books are considered for coverage under these programmes and are assessed by expert agencies with regard to their suitability for Indian

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students and non-availability of comparable books by Indian authors.

II. Indigenous University Level Books

(a) Scheme to Subsidise University Level Books and Reference Books.

The National Book Trust (NBT) has been implementing a scheme to subsidise university books and reference books since 1970. The main objective of the scheme is to encourage indigenous authorship and to make available to students books of acceptable standard at reasonable prices. The scheme neutralises the impact of low cost editions by foreign authors either being reprinted within the country or imported into the country in large numbers. As a result of this scheme the country's dependence on imported books is gradually reducing. This scheme provides finances in the form of subsidy to the publishers and royalties to the authors. The books published under the scheme are generally published and marketed by private sector publishers.

To start with the scheme was to subsidise university level books in English. In July 1982 the scope of the scheme was extended to cover books in Hindi and effective April 1984 the scope of the scheme was further extended to regional languages. So far about 750 books have been subsidised and 950 authors and 250 publishers have been benefitted by the scheme.

(b) Book Promotion in Hindi and Regional Languages

Ministry of Education in cooperation with the State Govts. launched in 1968 a massive programme to produce suitable standard books in Hindi and regional languages. The scheme envisaged to facilitate the change over from English to Indian languages as the medium of instruction at the university level. Under this scheme in the field of textbooks, priority is given to original writings. Textbooks written under the programme are to be directly linked with the syllabii content of prescribed courses. Translations/ adaptation of the best books of the world are also encouraged. This scheme is implemented through Book Production Boards/Hindi Granth Akademies set up by the State Governments. Uptil 31st January 86 a grant of Rs. 14 crores has been released in favour of the State Govts. and Akademies. 7258 books in various Indian languages have been produced.

(c) Core Books Project in the Medical Sciences

In India we still have paucity of books on Medical Sciences by indigenous authors. The imported books are beyond the purchasing capacity of the Indian students. Keeping this in view the Govt. of India envisaged the scheme for preparation of books in medical sciences by eminent subject specialists. The project was entrusted to the NBT in 1970. Under this scheme the authors are commissioned to write books and they are paid preparation charges in advance. In addition, the authors of the core books project are also entitled to get the usual royalty as applicable in the subsidy scheme. So far about 23 books have been published under this scheme.

(d) UGC Programme for Preparation of University Level Books by Indian Authors.

The University Grants Commission (UGC) initiated a scheme in 1970-71 of providing financial assistance to outstanding scholars in the universities, colleges and other institutions of higher learning in the country for the preparation of high quality books and reference materials for use in the universities and colleges. Under the scheme, assistance is given to the authors for the preparation of manuscripts. The authors are paid preparation charges and books are published by the authors themselves. Earlier, such works selected by the UGC use to be subsidised by NBT. According to the available information upto March 1985, 840 projects were accepted and 242 manuscripts have been completed and 511 projects are in different stages of implementation.

(e) Hindi & Other Languages Publications

The Language Division of the Deptt. of Education is also implementing a scheme to provide financial assistance to Voluntary Hindi Organisations for promotion of Hindi. This scheme inter alia provides for assistance for preparation and publication of Hindi manuscripts, assistance for publication and translation into Hindi of books in regional languages, assistance for publication of books written in Devanagari script, setting up and running libraries in Hindi books etc.

Besides, there is a scheme to produce standard literature in Sindhi including printing of books. Under this scheme about 20 books have been published.

For the promotion of Urdu, Deptt. of Education has established Tarqui Urdu Boards which bring out academic literature of Urdu for the benefit of students. The Bureau also compiles technical terms, encyclopedias, dictionaries, etc. in Urdu. This Bureau has published 450 books of various subjects.

There are also other institutes as Central Institute of Languages, Mysore, Central Institute of Hindi, Central Hindi Directorate which are engaged in research in the field of languages and linguistics in India. These institutions have also substantive publication programmes.

Government also provides financial assistance to organisations for production of Sanskrit literature. Assistance is given for printing and publication of original works relating to Sanskrit Literature, printing of out of print Sanskrit books, Sanskrit journals and to improve their quality etc.

(f) Besides, there are a number of Research Institutes and specialised agencies such as IITs, Indian Institute of Science, Council of Scientific and Industrial Research, Indian Council of Agricultural Research, Indian Council of Medical Research, Archaeological Survey of India, Anthropological Survey of India, Indian Council of Historical Research, Indian Council of Philosophical Research, Indian Council of Social Science Research etc., that bring out usual monographs, books in the specialised areas of science, technology, agriculture, medical science, history, philosophy, sociology etc.

General Books

In addition to the private publishers various Government and Government sponsored agencies like National Akademies, Institute of Advanced Study, Simla, Archaeological Survey of India, Indian Council for Cultural Relations, Publications Division of Ministry of I & B, etc. are engaged in the production of general books needed for mental pleasure and general awareness.

The Publications Division of the Ministry of I & B is one of the largest publishing and book selling enterprises. It publishes books and journals in all major Indian languages. Its publications cover a wide-range of subjects including art, culture, history, tradition, political evolution, economic development and social research.

The Publications Division have 7 major series like Collective Works of Mahatma Gandhi, Peoples of Modern India, States of Our Union etc. and Reference Publications like India—A Reference Annual. Besides, the Division also brings out 21 journals of varying periodicity like Yojna, Bal Bharti, Kurukshetra, Bhagirath in English and Hindi. The Division has brought out more than 16,000 titles so far.

The National Book Trust, India was set up in 1957 as an autonomous organisation under the Ministry of Human Resource Development, Department of Education, Government of India, with the objectives of producing and increasing the production of good literature at a low price and to foster bookmindedness. The Trust publishes books under well defined series such as India—the Land and the People, National Biography, Young India Library, Folk Lore of India, Popular Science, Adan Pradan etc. It publishes books in English and modern Indian languages and have brought out over 3,000 titles.

Sahitya Akademi was established in 1954 as an autonomous organisation by the government of India to work actively for the development of Indian literature and to set high literary standards to foster literary activities in all the Indian languages and to promote through them cultural unity of the country. The Akademi brings out a number of books every year besides a bi-monthly journal in English, 'Indian literature', a quarterly 'Samakalin Bhartiya Sahitya' in Hindi, and a half yearly 'Sanskrit Pratibha' in Sanskrit. The Akademi has sponsored two series of publications namely Histories of Literature of various Indian languages and Makers of Indian Literature.

Children's Books

Books are tools for development. Development of of a nation is in the development of its children. A country like India which has multiplicity of languages and ethnic groups need books for children in various languages to cater to their diversified needs. Authors, publishers and illustrators have to work jointly to stimulate young minds with a view to foster national integration, emotional maturity, reading habit among them. There is a need to have more and more children literature with colourful illustration.

The National Books Trust, India and Children Book Trust have brought out good literature for children. The NBT brings out books with uniform content at a uniform price under the series Nehru Bal Pustakalaya. So far 1168 titles and translations have been published under this series. The Children Book Trust is a private organisation devoted exclusively to children's literature. The Trust has been helped to set up its own press. They have so far published 430 titles out of which 200 are original titles in English and others are translations in other Indian languages.

There are not many private publishers who bring out books for children as they cannot afford to compete with the foreign publishers and public sector publishers. It is the need of the time that more books depicting Indian Culture and Progress in the field of science are brought out in simple language for the children to help future society equipped with knowledge and awareness.

Library Movement in India

Since there was a need to increase the number of libraries in the country, Government of India established Raja Ram Mohan Roy Library Foundation in 1972 on the occasion of bi-centenary of the birth of Raja Ram Mohan Roy, International Book Year and the celebration of Silver Jubilee of India's independence. The foundation was set up with an objective to take the library movement to small towns and villages in cooperation with State Governments, Union Territory Administrations and other organisations working in the field with a view to providing reading facilities for all sections of population.

Libraries especially public libraries in India come under the jurisdiction of State Governments. State Governments and voluntary organisations have taken the initiative for developing library services. Voluntary organisations also get grants from the Government and Raja Ram Mohan Roy Library Foundation supports the State efforts by rendering assistance on matching basis under certain schemes such as :

1. Assistance towards building up of adequate stock of books
2. Assistance towards organisation of mobile libraries and rural book deposit centres
3. Assistance towards storage of books
4. Assistance towards seminars, workshops, book exhibitions etc.
5. Assistance to libraries below district level for increasing accommodation
6. Assistance to State Central Libraries and District Libraries to acquire TV cum VCR set and cassettes for educational purposes.

There is a provision of Rs. 442 lakhs in 7th Five Year Plan under the schemes of Central Assistance to States and UTs. Besides, there is a scheme of Assistance to Voluntary Educational Organisations working in the field of public libraries. A provision of Rs. 200 lakhs have been made in the 7th Five Year Plan for this purpose.

There is a scheme of Direct Assistance for :

1. State Central Libraries and District Libraries through Central Selection of Books.
2. Assistance to Centrally sponsored libraries : (a) Nehru Yuvak Kendras (b) Jawahar Bal Bhavans (c) Other libraries recommended by the Central Government and/or approved by the Foundation.
3. Assistance to Children's Libraries and Children's Section of general public libraries.
4. Assistance towards collection and compilation of library statistics through official and non-official agencies. There is a provision of Rs. 159 lakhs in the 7th Five Year Plan for this purpose.

Achievements

District Libraries have been established in most of the districts. Some of the State Central Libraries and Regional Libraries also function as District Libraries for the respective districts in which they are located. State Central Libraries and Regional Libraries are usually Government libraries with a few exceptions such as Sinha Library, Bihar and Maulana Azad Central Library in Madhya Pradesh. For the last fourteen years the foundation has covered 18345 libraries at various levels i.e. State libraries (28), District libraries (387), Sub-division Taluq/Tehsil libraries (466), Nehru Yuvak Kendras (173), Bal Bhavans (49), Town and Rural libraries (16249), Mobile libraries/Rural Book Deposit Centres (879), NSS Centres and others (116).

Besides, all the Institutions have separate provision for the development of libraries. The University Grants Commission also extends grands for the development of University and College libraries. During the year 1985-86 UGC has released grants of Rs. 530 lakhs to the University libraries and Rs. 276 lakhs for the college libraries for the purchase of books and periodicals.

Imports and Exports

Imports : India is following a liberal import policy in respect of books and publications. The main objective of this import policy is to encourage free flow of knowledge and also to gain from the advancements in the scientific and technical fields made in other countries. It has been envisaged while putting a restriction of 1000 copies on each title per importer per year under the open general licence that it does not harm the indigenous publishing industry. Import of foreign editions of books for which Indian reprints are available is not permitted under the rules. Similarly the import of foreign reprints of Indian publications are not allowed.

Exports : India now exports books, including journals and periodicals, to over 80 countries. Beginning with a modest figure of Rs. 6 million in 1965-66, Indian exports had risen to Rs. 250 millions in 1984-85.

A remarkable feature is the wide variety of subjects on which India publishes books. It is gratifying to observe that the USA, UK and West European countries, Japan and Australia are good markets for books on Indian Philosophy, Religion, Yoga, Culture and

Ancient Classics, History, Current topics and Natural Sciences. Children's literature has a steady market in Singapore, Malaysia, Kenya, Nigeria, Fiji, West Indies and Mauritious.

Many factors have been responsible for the phenomenal ries in the export of Indian books over the years. An important aspect has been the systematic manner in which Indian publishers and distributors have been promoting the sale of books abroad. Their representatives travel extensively in various countries where they contact trade and institutional customers. This enables them to meet the existing demand and promote new books.

The Government of India has been very particular to encourage book exports. The Chemicals and Allied Products Export Promotion Council, popularly known as CAPEXIL, and set up a separate panel to deal with the export of books and publications. This panel helps Indian book exporters with their problems and facilitates their export activities by granting cash assistance at the rate of 8% for all types of books. Blanket Exchange permit is being issued to the exporters @ 10% of export earnings. Marketing Development Assistance is granted at the rate of 30% (60% for small publishers) for delegations, study teams etc., sponsored by the CAPEXIL. For export promotion activities such as market studies, publicity, participation in the fairs etc. subsidy @ 60% is given to the members of CAPEXIL.

The National Book Trust has been playing a significant role by helping Indian publishers and distributors to participate in various international book fairs. Regular and increasing Indian participation at the Frankfurt Book Fair and the other important international fairs at London, Cairo, Singapore, Moscow and in several other countries has been an important factor in projecting Indian books and building up their sales in overseas markets.

Copyright

It is very essential for the development of books that the country has a strong national Copyright Law. It is important in the sense that if the rights of the authors and publishers are not protected, there is every chance of their works being pirated. In this regard India stands on a very strong ground. The Copyright protection is governed by the Copyright Act, 1957. The Act provides that the author is the first owner of the copyright except where the work is produced under the contract of service or apprenticeship. Copyright owner according to our Act is empowered to adopt, translate or copy or allow the work for cinematography, record or broadcasting. General terms of the copyright is for author's life and 50 years after his death so that this way even his successors are given protection.

The Copyright Act has been amended in 1984 to check the wide spread piracy. It has incorporated stringent punishment for infringement of Copyright.

According to our Copyright Act authors enjoy special rights. Even after assigning their rights, the authors have a right to claim the authorship of the work and also right to restrain or claim damages for any distortion or mutilation of their work or any action taken on the work which would be prejudicial to their honour or reputation. The right relating to restraint or claim for damages or distortion or mutilation, etc. can be claimed even by the legal representatives of the author.

The Copyright Act provides that any act which is done by anybody else without the authorisation from the author which only the author has the right to do, is punishable offence. Even when there is any violation of the terms of assignment, it constitutes copyright infringement.

Since India is a member of the two International Copyright Conventions, works of Indian nationals get copyright protection in other countries which are members of these Conventions. Likewise, foreign works also enjoy Copyright protection in India as if authors of these works were Indians.

By virtue of 1984 Amendment of the Act, authors can come before the Copyright Board in their disputes with publishers for inexpensive summary disposal of their disputes. The Copyright Board can give permission to copyright owner to revoke his agreement if the terms of the assignment are harsh to him or if the publisher unduly delays the publication. The amended Act further provides that any assessment has to be definite in terms and should indicate clearly the rights proposed to be assessed and the size of the work.

Other Book Promotional Activities

(a) **Book Fairs and Exhibitions**

Besides participating in the International Book Fairs for the promotion of books abroad, a number of book fairs are organised within the country. These fairs and exhibitions are organised by the National Book Trust which is fully financed by the Government. The Trust so far has organised 7 World Book Fairs in New Delhi, 12 National Book Fairs in the major cities of the country, over 100 book exhibitions in district and university centres and 5 book festivals on a regional basis. Apart from these book fairs and book exhibitions, the Trust also celebrates a National Book Week. All these book fairs, exhibitions and National Book Week are organised in collaboration with the Trade Federations such as Federations of

Indian Publishers, Federations of Publishers and Booksellers Associations, and Authors Guild of India. All these are given wide publicity through Press Media, Posters and Banners.

(b) Book Exhibitions of University Level Textbooks

In order to publicise the indigenous publications, Raja Ram Mohan Roy National Education Resource Centre which is a part of the Book Promotion Division organises a number of exhibitions in the country at various universities and institutions of higher learning. In doing so, the Centre creates an awareness about the presence of indigenous standard books in various fields. The Centre has so far organised 55 exhibitions of indigenous textbooks.

(c) Indigenous Authorship

In general, the economic position of the authors is not very sound except some authors of the best selling books. There are very few authors who survive solely on their royalties. Authors sometimes have some complaints with the publishers and Federation of Indian Publishers. They have established a Committee of Authors and Publishers in collaboration with the Authors Guild of India to sort out misunderstanding between two groups. Besides our Copyright Act also protects the rights of authors. Fellowships are granted for writing books by University Grants Commission. Besides, authors are assisted for organising their conventions, workshops, etc. In order to promote the indigenous authorship, the National Education Resources Centre (NERC) convenes meetings of the experts to evaluate the books written by Indian authors. The comments are circulated by NERC to all the universities. This helps popularising their books.

(d) International Standard Book Numbering System

The NERC has been designated as the national agency for the implementation of ISBN system in the country. This system inter-alia helps to promote the export of Indian books and minimise the process of delay in executing the orders. This system helps to identify the publisher of the book and the individual titles. This is an economic way of communication among publishers, suppliers, booksellers and book buyers. A provisions of Rs. 2 lakhs is being made annually for the implementation of ISBN System.

(e) Scheme of Assistance for Book Promotion

Department of Education has a scheme of assistance to voluntary and private publishers for organising seminars, training courses, workshops, annual conventions, etc., connected with book promotional activities. Whenever such requests are received, the Government usually releases grant to meet 75% of the approved expenditure on such activities. During the past 5 years, a number of organisations have been given grants for this purpose.

Besides these promotional activities, there are a number of facilities available to the publishers in terms of availability of paper, purchase of books by Government agencies, tax rebate under Section 80 QQ, NBT Subsidy, help in publicity and postal rates.

(f) Interaction with the Book Industry

In all the Committees of the Government, the Federation of Indian Publishers and Federations of Publishers and Booksellers Associations in India are given representation. All the exhibitions within the country and abroad are organised with their cooperation. In the matter of policy making, their views are always sought as to understand their difficulties.

(g) National Book Development Council

The Government of India set up a National Book Development Board in 1967 to lay down guidelines for the development of book industry in the context of overall requirements of the country. It remained active upto 1974. This Board was revived in 1983 under the name of 'National Book Development Council'. The Council consists of people from all walks of life concerned with books. This is an advisory body which advises Government for the promotion and development of book industry in the country. This Council was entrusted to draft a National Book Policy. The Council constituted a Working Group to draft the National Book Policy which has been submitted to the Government.

The Report has made a number of suggestions and recommendations on various aspects of book promotion in the country. The main recommendations of the report relate to publication of translation of classics and other outstanding Indian works, publication of children's literature by a nodal agency of the Ministry of Human Resource Development, Association of private publishers in publication of school textbooks, publication of university level books in Hindi and regional languages, production of books for non-formal education, establishment of a national organisation of authors on cooperative basis, acquisition of copyright of books in public domain, establishment of Book Finance Corporation, supply of paper at reasonable prices, reduction in postal rates for despatch of books, development of libraries, registration of publishers, etc. These recommendations are being examined in detail by the Government for implementation. □

GOVERNMENT IN PUBLISHING

S. N. Chakraborty*

Right to read and Society's obligation to ensure that everyone has an opportunity to enjoy the benefits of reading cannot be over emphasised in a democratic set-up as in India. It is not only the active and intelligent participation of people in the governmental process upon which the functioning of a democracy depends, but also the responsibility of the Government to interpret and justify their policy to the governed, and to create an informed and intelligent opinion on all matters related to these activities. Even now, printed literature is the best source of passing information on the activities of the Government in India.

Public Sector publishing plays a major role in Indian publishing Industry, in terms of number of titles, volume, and quality of output. One of our major social tasks, by the time we reach the 21st century, is to bring about 100% literacy in this country, and this task cannot be accomplished without substantial increase in Public Sector publishing activities. The areas of activities in publishing by different governmental organisations is well defined. The Central Government official civil publications—Administrative Reports, Developmental Programmes and activities, Commission or Committee Reports, Bills, Supreme Court Reports, Laws, Codes, Rules & Regulations etc., Periodicals, Gazettes, Digests, etc., and Defence publications of Government of India, are handled by the Department of Publication which comes to about 80% of the total Government publications. The Publications Division of the Ministry of Information & Broadcasting publishes informative publications, useful literature, Periodicals, etc. The Survey of India deals with Maps, Charts etc. NCERT and NBT publish Textbooks and important publications at the Central, level, and State Text Books Corporations at the State level take care of the publications of the nationalised books. The Lok Sabha/Rajya Sabha Secretariat brings out publications related to the records of proceedings of the Houses, Rules & Regulations etc. CSIR, Indian Council of Agricultural Research (ICAR), Sahitya Academy, the National Museum, Archaeological Survey of India, Central Universities and other Central Government organisations are publishing specialised publications, and similar organisations operate at the State level for promotion and publication of scholarly works in Indian languages.

Government publications are, in general, rich in content, reliable, inexpensive source of information on every subject af current interest, and are useful to common men, experts, and policy makers. In this age of information explosion, it is necessary that governmental activities, both regular and developmental, should percolate to all strata of society—peasants, educationists, labour, industrialists, management experts; legal practitioners and others. The people are required to be informed and trained. There is a need of dissemination of knowledge through printed publications by the governmental agencies. It is essential to educate people in their day to day work which helps in injecting new ideas, and results of research activities to be transmitted for application for the progress of the nation and to benefit the people as a whole. Even for maintaining law and order, rules & regulations have to be explained to the public through printed literature.

The substantial amount of direct government publishing is done by managing the materials from the different sources, and getting these printed and finishing work done at Government Presses. The emphasis is on accuracy and rich contents, and the price is fixed keeping in view the general purchasing power of the people in the country so that dissemination of knowledge is always at the blessings of the government and not at the patronage of the readers. In this process, the quality in general, the get-up, printing and finishing of the publications may not be the very best that one can have, but utility remains the prime factor. However, where quality of work is required to be of high standard and the publications are required to be preserved for the purpose of reference for a longer period, the inputs used for such publications are of good quality. Printing and finishing work are also of high standard. Some of the Government of India Presses, where most of the Central Government publications are printed, are now equipped with latest photo type setting equipments and most modern printing and finishing machinery. Government publications are, in general, placed in three categories—Periodicals, one time publications for seasonal use, and publications for reference purpose and preservation. The introduc-

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Controller of Publications, Department of Publications, Govt. of India.

tion of photo type setting, modern preprocess, offset printing and finishing technology have resulted in better quality output without much increase in price. It has always been the endeavour of the public sector publishing agencies to bring out quality publications at reasonable price. Some public sector publishing agencies are not only publishing quality publications having excellent reading material at low cost, but also promoting bookmindedness among the people. Valuable contribution has been made by the Sahitya Academy for promotion of creative literature in Indian languages. Some works published by the National Book Trust and Publications Division etc., are not only of high standard, but also comparable to the best in any country. Government publishing is not a profit making activity. There are publications which are slow-moving and many of them are not commercially viable. No private sector publisher will undertake publishing of such publications. The growth of literacy and readership through government publications helps create a market for general books. The Textbooks published by Central and State Government Undertakings, are, in general, of high quality, and available at affordable prices. In addition to publishing and making books available at very reasonable prices, the government provides funds for subsidised publication of research and scholarly material of high national importance to gear up the developmental process in the country, although the return in terms of sales of publications may not be commensurate with the cost of production, etc.

Essential and authentic information, well produced through print media at a cheaper cost, generally, do not serve the purpose unless disseminate to the widely scattered population in the country. Due to lack of communication, the distribution remains a source of impediment to the publishing industry. Although some government publishers have their own distribution channels, distribution network in the country in general remains inadequate as a result of which the distributor takes the major share in the book trade. In spite of this, the reading public is not well informed in time about the new arrivals, and this communication gap at times results in fruitless exercise. The library movement in the country is yet to take a giant leap forward. The Book Clubs are almost a non-entity, and in remote areas, there are very few booksellers/book shops exclusively meant for government publications. Even the distribution system of the textbooks requires much improvement. The distribution of textbooks in Bihar State is done through the District Teachers Co-operative, and such organisations in other States are also doing well in this area. The important government offices and voluntary social service organisations at State, District and Block level should be in the regular mailing lists of all the Government publishers, and some of them be appointed Sales & Return agents of government publications. They can have a small Sales Counter attached to the offices which will help in reaching the publications to a larger number of readers throughout the country. Due to recent increase in the postal charges and railway freight, the cost of sending publications to longer distance have become a very costly affair for the publisher. The government publishing agencies, who have their own distribution system have their outlets located only in major cities. There should be further extension of distribution system to the district and block level so that the books are available through the government distributing agencies at a reasonable rate at different parts of the country in a minimum possible time. It is sad that even today, one cannot get some important publications or come across a serious book shop even in the affluent areas of our capital except perhaps, at South Extension or Connaught Place. If that is the situation in the capital, what can one expect in Districts or Talukas. The Railways and Postal Departments should being down the freight charges and the postal charges for the despatch of the books and publications to a considerable lower level, and should devise ways and means for quick and safe delivery of books and publications to their destination. There should be more opening of libraries, Book Clubs, and Co-operative Book Shops throughout the country so that important books and publications reach every nook and corner of the country, and benefit the readers at all levels whom the government publishers are required to serve.

Information is a costly resource and has a finite life time depending upon the problems. It is, therefore, all the more necessary that information flows uninterrupted to all at a reasonable cost which is very important for functioning of the democracy. In the coming years, we need quicker and better communications/transportation, introduction of electronic publishing systems, rigid quality control and effective distribution network so that publications are easily available to all citizens in time. □

WHY BOOKS DO NOT SELL ?

Amrik Singh*

The answer should be obvious. Books do not sell because not many people read them. The question therefore needs to be put differently. It should be : Why People Do Not Read.

My answer to it is three-fold. One, it has a good deal to do with our system of education. Secondly, the electronic media is beginning to displace the habit of book-reading. And thirdly, alongwith so many other things books are becoming more and more expensive. Each one of these reasons requires to be considered in greater depth.

System of Education

Most people acquire the habit of reading around the age of 11 or 12.Till the age of 9 or 10, children have not acquired the proficiency to read for any length of time. They have learnt the alphabet and they can read something but what they cannot do is to read for any length of time or on a consecutive basis. Around the age of 10 or so, however, they come to acquire that proficiency.

Then the next question arises. Are books of the right kind available? If they are, children start devouring them. Sometimes books are available but they are not of the kind which would interest or excite them. In other words the books available should be addressed to their age. At that age there are certain things that attract children and there are others which do not. If books of the right kind are available, it ignites their interest.

Children who come from homes which have books lying around find it easier to take to books. In that sense children from literate homes have an advantage over other children. The other source for books can be libraries. We know very well that the one thing most schools do not have are libraries. A very small percentage do have them but then they would not constitute even .001 per cent of the total number of schools. Public libraries for children are so few that it almost looks like a joke to refer to them. Clearly we are doing everything on our part to make sure that at the age when children are most likely to acquire the habit of reading we do not provide them the necessary facilities. It is possible to say much more on the subject but it should not be necessary to do so.

Only about 5 per cent of those who pass out from schools enter college. What happens in college is somewhat better but it is far from satisfactory. More than a decade ago, as a member of the UGC Committee on the Development of Libraries, I discovered that though the committee consisted of a dozen members, not even one of them had a college background. Almost each one of them was connected with the universities and yet 85 per cent of students study in colleges and their interests cannot be ignored.

Appropriate action was taken however and one or two people with a college background were inducted into that committee. But as everyone is aware, the real funding for colleges comes from State governments and not from the UGC. States do not have anything like a policy for college libraries. On a rough estimate one may say that about 5 per cent of colleges have reasonably good libraries and another 5 per cent can manage to sail through. But the rest of them do not pay the kind of attention to libraries that ought to be paid.

This is one aspect of the problem. The second aspect is no less important. For good and competent teaching, it is important that the teachers teach in such a way that the students feel encouraged or inspired to go to the library and consult books on their own. In a sense, this alone is the hallmark of good teaching. Whether we have this kind of teaching or not is there for anybody to see. The general decline in the performance of teachers is to some extent reflected in the absence of that close linkage between classroom teaching and library consultation which is indispensable for learning.

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Electronic Media

Coming to the increasing importance of the electronic media, one has only to refer to it and see how the situation has been going against the print media. Radio was not as much of a rival to the book as television is. While the television is still confined to urban areas, it is spreading into the countryside as well; in any case education is more of an urban phenomenon than a rural phenomenon. That being so, what is happening was more or less bound to happen. What is truly disquieting is the fact that we are not doing anything by way of a change of policies to reverse the situation.

Books are Expensive

To come to the third point, if books are beginning to be more and more expensive this is basically for two reasons. One, because everything is becoming expensive. But the second reason is no less relevant. Our book reading public is small. Therefore, the print run of an average book is not particularly high. At one time it used to be 1000 or 1100 copies at the time of the first publication. In certain cases, now, it has even come down to half of that. To some extent this is so bacause there are not many readers, but it is also because of the state of publishing in the country. This particular aspect needs to be examined in greater detail.

With more than a dozen distinct languages in the country, readership is fragmented. The largest number of books are published in English. Hindi too has a reasonably good market, though considering the number of Hindi speaking population in the country, it can and ought to be much larger. Some of the other Indian languages like Malayalam, Bengali and Marathi are doing reasonably well. Nevertheless, the percentage of readership is not high and there are all kinds of limitations therefore.

As far as publishing in English is concerned, there is a peculiar kind of notion on the part of most publishers that they cannot sell beyond a limited number of copies. This notion is unfounded. Quite a number of foreign publications sell in large numbers. It stands to reason therefore that potential readership is there. Only it has to be tapped.

Not only that, there is an odd kind of notion that books should be priced high, and if a few hundred copies can be sold, the publisher would recover his cost and then gradually would make some profit. This is a wrong way of going about the job. The fact of the matter is that our publishers have not shown that kind of enterprise whereby the economies of scale are taken advantage of.

To some extent, this is also linked with organization and structure of book selling in the country. Perhaps no sector of publishing is as poor in our country as book selling is. All kind of reasons have contributed to this state of affairs including the fact that there is paucity of finance. The government has hardly helped at any stage and things continue to be difficult therefore.

State of Libraries

The state of libraries in the country is also an important factor. While some educational institutions do maintain reasonably well stocked libraries, the system of public libraries is at a very elementary stage. The situation is better in some of the Southern states. Still it is far from satisfactory. Not only have we neglected the basic job of making every one literate, we have also not paid enough attention to the needs of the neo-literates. They need special kind of books. But the same are not being produced in the country. West Bengal has tried to do something in this direction but it has not succeeded beyond a point.

Extensive and professionally conducted book reviewing also contributes to the promotion and sale of books. This aspect of publishing has been grossly neglected in our country. Some of the Indian languages have made valiant attempts in this direction. But these attempts are as half-hearted as the ones made in English. Altogether this particular sector of publishing is not given the importance that it should have been given.

In order to make sure that books that people do read and that books do sell, a number of simultaneous steps would have to be taken. The more important of them have been referred to above but a few others can also be thought of. Experience in other countries of the world shows clearly that despite all that is claimed for it, the electronic media is more useful for entertainment than for education. All said and done, therefore, education will have to rely upon the written word. The close connection between education and publishing should thus be obvious. Both of them need to be strengthened and streamlined. At the same time, a network of libraries has also got to be established. It is only when the problem is approached from a variety of angles that we will have anything like success. □

Recent Trends in Social Sciences Literature

S.P. Agrawal*

Barring natural sciences, almost everything else attracting clear and logical thinking comes under the vast and ever-expanding umbrella of social sciences. The 'harvest' of recent publications emanating from this scientific thinking in our country bears comparison with the harvest we reaped in the first couple of decades of our Green Revolution before it reached a plateau. It is true that the social sciences 'titles' flooding the markets would prove that for the authors in this branch of knowledge only the sky is the limit. But it is also a timely reminder to the reading public that the blue canopy over our heads, called the 'sky' with all our romantic passion, is merely an optic illusion limiting our sights. Discriminating readers of the contemporary social sciences literature would notice that the harvest presented to them contains a massive quantity of chaff with but a few grains in them. It is almost like mining gold after wading through and sieving a lot of unwanted material. What we need is an academic non-partisan panel in each major publishing centre to act as a guide to publishers exhibiting tinsel goods at present. One is constrained to comment that this purpose is not served by a plethora of book reviews given to the people, having based them on whatever little comes to them by way of complimentary copies. Only the panel suggested here could perhaps give the hallmark of grades—like 'Agmark' on public consumption commodities—on each social science publication or even on other books brought out by publishers. But in our kind of set-up every panel so created will be in danger of being subverted by the various pressure groups—social, political, economic and bureaucratic. The result : back to square one. So we might just as well confine ourselves to a post-mortem of what we have.

As we do this, one of the first features about the recent social science literature attracting our notice is a plethora of books on women, who belong not only to the weaker sections of the society, but are also half the country's population. No wonder, they have the pride of place in any comprehensive shelf for social science publications. One such book is the revised and expanded version of '*Feminism and Nationalism in the Third World in the Nineteenth and early Twentieth Centuries*' by Kumari Jayawardena. According to the writer, except for China, in all the other countries chosen for the study, feminist issues hardly became the points of major debates within the anti-imperialist movements. While women in "the other countries" were used by male bourgeois leaders to add to their strength in their fight against the enemy, they were meant to go back to the kitchen as soon as the goals of the movements were achieved. What Jayawardene does not realize is that women's participation in the anti-imperialist movement marked the starting point in women's political participation. When the cause of women was let down, they were forced to resort to more effective means for their liberation. It should not be forgotten that this is what precisely happened in India during the liberation movement against British imperialism, and we are among the few countries where a woman could rise to be a prime minister. This is not to minimize the plight of women in India even today, but only to show that the writer has not done much homework, at least on India. The 268-page book costs Rs. 160.

In another book '*Speaking of Faith*'—a compilation edited by Diana L. Eck and Devaki Jain—several women have been brought forward for their action and greatness, many of whom had to be tested in the fires of injustice, but they have refused to be silent. There is yet another book '*The Wrongs of Indian Womanhood*' by Marcus Fuller, published originally in 1900, and re-published in Delhi in 1984. The book deals with the reality of child marriages and of the cruelty of 'enforced widowhood' inflicted upon a woman when she loses her husband. In many areas of South India, especially in the countryside, widows are still forced to shave their heads. Social ostracism is matched only by self-imposed austerity by widows themselves even if they are educated. The author talks of the lack of courage and "conviction on the part of young men who went overseas but on return "conformed" and married child brides to please their people as was then the accepted practice. But books such as this belong to what we would like to call another age despite some distant echoes that they might have even today.

These books on women, selected at random, do not contribute much to the present thinking or situations, which demand contemporary treatment and have to be updated in content. In '*Some reflections on Dowry*', the Oxford University Press has published a discourse by M.N. Srinivas on the occasion of J.P. Naik Memorial Lecture for 1983. The thought-

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provoking piece traces the history of dowry from the old custom of 'dakshina' as part of the ceremony of 'kanyadan' at the time of marriage, and goes on to discuss how it is an anti-social institution, which has influenced the presentday economic behaviour of couples having daughters among different caste groups. The author has suggested an all-out attack on the dowry evil by educating the people and the recognition by them that men and women are equal partners. But even this publication does not go far enough to include the presentday menace of bride burning. A thorough research on current evils is a *sine qua non* of progressive thinking, which must find more and more space in current publications on social science themes.

Take the case of sati—a burning shame in our present times. When the crunch comes, frantic efforts are made to save one's skin. Following the sati tragedy in Deorala village in Rajasthan, scapegoats were found to be much in demand. On whom will the chopper fall ? Everybody was seen passing the buck soon after the hapless young widow, Roop Kanwar, was burnt alive with her dead husband in her village. Long after the gruesome tragedy, the police and a few officials arrived on the scene and started proceedings against the girl's in-laws, but made no arrests. The mela had already started around the spot where Roop Kanwar sat on the pyre with her dead husband's head in her lap before she was set alight by her younger-brother-in-law. The question is : should social science publications focus light on current events or should writers put off these exercises for a post mortem from published documents 10 years hence?

As the latest discovery of the half-burnt body of a woman on the pyre of her husband in Kheda Misr village in Lalitpur district in Uttar Pradesh would show, the Deorala episode was not the last known sati tragedy in India. Social scientists are obliged to do the necessary field work to unravel the ramifications of social disasters perpetrated by heartless men of our own society, perhaps living next door. Apart from the official bungling in these tragedies, the role of women's voluntary organizations in big cities should be thoroughly discussed by social scientists. The story is doing the rounds in Delhi that when Roop Kanwar tragedy took place, for many days it never occurred to women activists in Delhi that they should rush to Deorala. Instead, their daily duty was to move from Speaker Balram Jakhar's house to Union minister Buta Singh's house to their own houses—to relax after their labours in air-conditioned luxury. To them, it was apparently pointless to rush to Rajasthan where some Rajputs were brandishing their naked swords in Deorala village in preparation of the 'chunari' festival.

What the society expects from the writers involved in social sciences in some degree of dedication to values. The latter have to face the challenge of social change, and social sciences cannot afford to remain aloof and objective. As it has been aptly said, those in social sciences have to take sides, and the side it should take is that of the proverbial underdog. This brings us to a publication, which deals with the *Challenge of Social Change*' and is edited by Orlando Fals Borda. Human beings, their aspirations, frustrations and capacity to mobilise are essential factors in the process of change, and, as the contributors to this volume suggest, participation in the decision making process is of vital importance. One of the writers here makes a sound contribution to the thinking process : "Each society should be studied on its own terms and modernization, or the need for it, is not inherent in all societies ; some societies develop according to their traditions and at their own pace without jumping on to the bandwagon of modernization." The social scientist has now been able to find out strategy to channelize frustration and tension so as to avoid or control unproductive conflict. Another contributor has described sociological intervention becoming more and more popular as "participatory action research". Action research groups have met with recognition and initial success in India too, with their "I know what you need" approach. This is the kind of books people in our country are looking forward to, and it is for social scientists and publishers, together, to make way for the books we need, not the made-easy-type of publications being served to us.

An example of some recent off-beat writings is provided by 'Literature, Social Consciousness and Polity' edited by Iqbal Narain and Lothar Lutze. It is a collection of papers presented at the VIII European Conference on Modern South Asian Studies at Talberg in Sweden in 1983 and published in 1987. These essays are based on the premise that a study of literature can enrich our understanding of the subtle interaction between the emerging consciousness and the prevailing political structure. They give us the understanding of resilience and change in south Asian societies. What should be appreciated here is that the focus is not only on the 'big few' but also on the numerous others who have played an important role in shaping the social texture through their responses to new ideas, structures and processes. Running through the essays is the common thread, which is the quest for national integration in the pull and swing of cultural pluralism in the region as a whole.

Another area, where we do not have enough purposeful writing is the one pertaining to development as a whole, particularly with reference to India. Our planning process started fifty years ago, when the Indian National Congress set up a panel with Subhas Chandra Bose at the helm of its affairs to produce what could be rightly described as India's First Plan. Though the British government in India could never be expected to follow it up, we still have the document, projecting the hopes and aspirations of freedom-fighters led by Mahatma Gandhi. In recent years, fortunately, we have had a number of remarkable contributions in this area, one of them being '*Development Planning—the Indian experience*' by Sukhamoy Chakravarty, published by Clarendon Press, Oxford, last year. The book deals with the experience of development planning in India over the last thirtyfive years. It explains the analytical considerations which went into the formation of the country's development strategy, initially chalked out by Nehru and Mahalanobis, and the modifications which were introduced in later years to keep pace with our experience. Dealing with the structure of our Five Year Plans and the problems of their implementation, this is probably the first book to provide a comprehensive review of Indian planning in the light of development theory and the many debates on planning that have been carried out in other countries. The present publication is an expanded and enriched version of Chakravarty's discourse delivered as the Radhakrishnan Memorial Lectures at All Souls' College, Oxford, in 1985. This excellent publication ends with an overall assessment, ending with the words : "If Indian society values growth with equity, as plan documents repeatedly emphasize, India has still a long way to go in adapting institutions and aspirations in that direction. Neither the recently discussed virtues of the free market mechanism nor the earlier panacea of central planning would appear to carry much conviction today. Societies grow in historical time characterized by irreversibilities, and history does not perform controlled experiments for our benefit. Hence the task for perspective planning remains to minimize avoidable social costs. However, the need for flexible adaptable operating mechanisms is very much there. Above all, there has to be a much greater degree of political consensus on what is attempted. India benefited from this in the first decade of planning. It is still greatly needed in the remaining years of this century. No facile conclusion is warranted" Based on this realistic note, there is enough room for worthwhile follow-up books on development in the near future to give the necessary perspectives to our planners, especially those associated with the Planning Commission.

Another book which merits attention here is '*Development Policy and Administration in India*', edited by Ramesh K. Arora and P.C. Mathur. It is a collection of original essays by well-known social scientists, compiled to honour Prof. M.V. Mathur. The subject areas include policy potential of social sciences, strategies and policies for agricultural development, patterns and policies for urban development, strategies of industrial development, public enterprises, energy management, university education, administration for nation-building, and a number of other allied topics.

Publishers and writers should know what the readers want to read, not what they, in their wisdom, think what is easy for them to bring out and to make them money-spinners at the same time. People now would like to know how best to tackle communalism to make India a truly secular state. A book like '*Communalism in Modern India*' by Bipan Chandra is one of those most welcome to readers as well as to our various libraries. The author differentiates between communalism and separatism. While separatism was only the last phase of Muslim communalism, the conflict now is not between the Hindus and the Muslims —as many assert—but between Hindu and Muslim communalism on the one hand and the secular nationalist forces on the other. Why do not political scientists get at the root of the problems ? Bipan Chandra says that the Indian National Congress followed the politics of compromise between the Muslim and Hindu communalists. As a result of this, the Congress could not launch a resolute struggle against communalism. No sustained campaign was ever started to educate the masses and to expose the real designs of the communalists. This weakness on the part of the main national party, says the author, gave ample opportunity to the communalists from both sides to strengthen their respective position. Bipan Chandra's book has been welcomed as a major contribution to the study of communalism.

A survey of recent social science publications also brings to light the subject of development of weaker sections. G.D. Kabra in his book, "*Development of Weaker Sections*" tries to explain why more than three decades of planning on the part of the government has failed to bring about any appreciable change in the condition of the weaker sections of the society. The relationships between the bureaucratic organization on the one hand and the beneficiaries on the other has been examined from the points of view of the various administrative constraints and theoretical assumptions. The 'segregation approach', which favours separate institutions for the weaker sections, and the 'configuration approach', wanting ways and means to make the existing institutions more efficacious have been analysed. The manner in which innovations are accepted by the people at the grassroots has been examined by the author. The analysis of the socio-economic background of small and marginal farmers reveals that they find themselves unable to take advantage of the bank loans and other facilities because of meagre resources of land and animals, monsoon hazards, lack of irrigation supplies and scarcity of fodder for animals. The writer suggests that there should be steady improvement in the relationship between the officials and the beneficiaries, with a clear change of attitude on the part of the officials. A related book on rural poverty entitled *Direct Attacks on Rural Poverty : Policy, Programmes & Implementation*", by Prabhu Ghate tries to analyse some of the economic, socio-cultural and administrative constraints which come in the way of the anti-poverty programmes. Our experience is that unless the social science books are readable, interesting and useful, they stay in the racks only to be dusted every now and then. □

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J. B. Saksena
REGISTRAR & OSD

Indian Books on Science & Technology 1983-87

An Analysis of Library of Congress' 'Accessions List, South Asia'

Kamlesh Arora*
A.S. Rao**

Among several countries of the world, India has none too insignificant in place book production. It ranks 4th in Asia and 18th in the whole world. The total number of books produced by some of the leading countries of Asia and the world are given in the following table:

Rank	Country	Total No. of Books Produced
Asia		
1.	Japan (1983)	44,253
2.	Korea, Republic of (1984)	35,446
3.	China (1984)	34,920
4.	India (1984)	9,954
World		
1.	U.S.S.R. (1984)	82,790
2.	U.K. (1984)	51,411
3.	Germany, Federal Republic of (1984)	48,836
4.	Japan (1983)	44,253
5.	France (1984)	37,189
6.	Korea, Republic of (1984)	35,446
7.	China (1984)	34,920
8.	Spain (1984)	30,764
9.	Brazil (1982)	19,179
10.	Colombia (1984)	15,041
11.	Italy (1984)	14,312
12.	The Netherlands (1984)	13,209
13.	Switzerland (1984)	11,806
14.	Yugoslavia (1984)	10,918
15.	Denmark (1984)	10,660
16.	Hungary (1984)	10,421
17.	Sweden (1984)	10,373
18.	India (1984)	9,954

The figures given in the brackets are years for which the data is available. The source of information for the above table is the 'UNESCO Statistical Yearbook 1986'. The figures for U.S.A. are not reflected in the above table as the same are not listed in 'Unesco Statistical Yearbook 1986'.

Analysis

An analysis of the book production of a country is in a way a reflection of the efforts of that country to produce information and knowledge. With this premise, an analysis of the books published in Science and Technology during 1983-1987 in India has been carried out. The source for this which indicates the quantity and quality of book production in India could appropriately be the Indian National Bibliography. This is a monthly publication cummulated annually. But on account of production delay in bringing out the issues, it does not provide current data for statistical analysts. However the Library of Congress 'Accessions List, South Asia', lists monthly the acquisition of books produced in South Asian countries which are of interest to American Libraries to support programmes relating to South Asian studies. A fairly good number of books produced in a country are listed language-wise in the 'Accessions List, South Asia'. The books on Science and Technology form a considerable part of this list.

The main objective of this study is to indicate the total no. of Indian books published for the last 5 years (1983-1987), their distribution by subject groups and the U.S. interest in Indian books. The analysis restricts itself to books in the English language, as books in other Indian Languages in Science and Technology are few and far between. Secondary publications like catalogues, bibliographies, etc., Laws and Statutes, Reports of various adhoc commissions and legislative proceedings of S & T subjects etc., have not been included for the present study.

Methodology

Every issue of the 'Accessions List, South Asia' for the past 5 years was scanned and items listed there were identified and grouped year-wise and then under seven subject groups. The year-wise data is represented in the following table:

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*National Science Library, Indian National Scientific Documentation Centre, New Delhi.

Year	Total No. of Books	S & T Books	% of S & T Books
1983	2736	477	17
1984	4074	629	15
1985	3360	462	14
1986	2827	383	14
1987	2490	415	16

The above Table shows total No. of books and Science and Technology books listed in the 'Accession List, South Asia' for the period 1984-1987. It also shows a fall in book production from 1984-1987 whereas the percentage of S & T books for these years has slightly increased. The above table has also been presented graphically in Fig. 1.

Books on Science & Technology which were produced during 1983-1987 have been grouped under various subject groups and the total No. of books for each group for the last 5-year period is also calculated. The above mentioned data is represented in the following Table :

Subject	Year					
	1983	1984	1985	1986	1987	Total
Science & Technology in General	13	56	26	14	19	128
Physical & Earth Sciences	48	92	65	81	76	362
Biological Sciences	48	92	83	73	39	335
Health Sciences	56	40	32	12	28	167
Engineering	105	132	62	53	61	413
Agricultural Sciences	126	146	156	115	103	646
Others	43	37	16	39	78	213

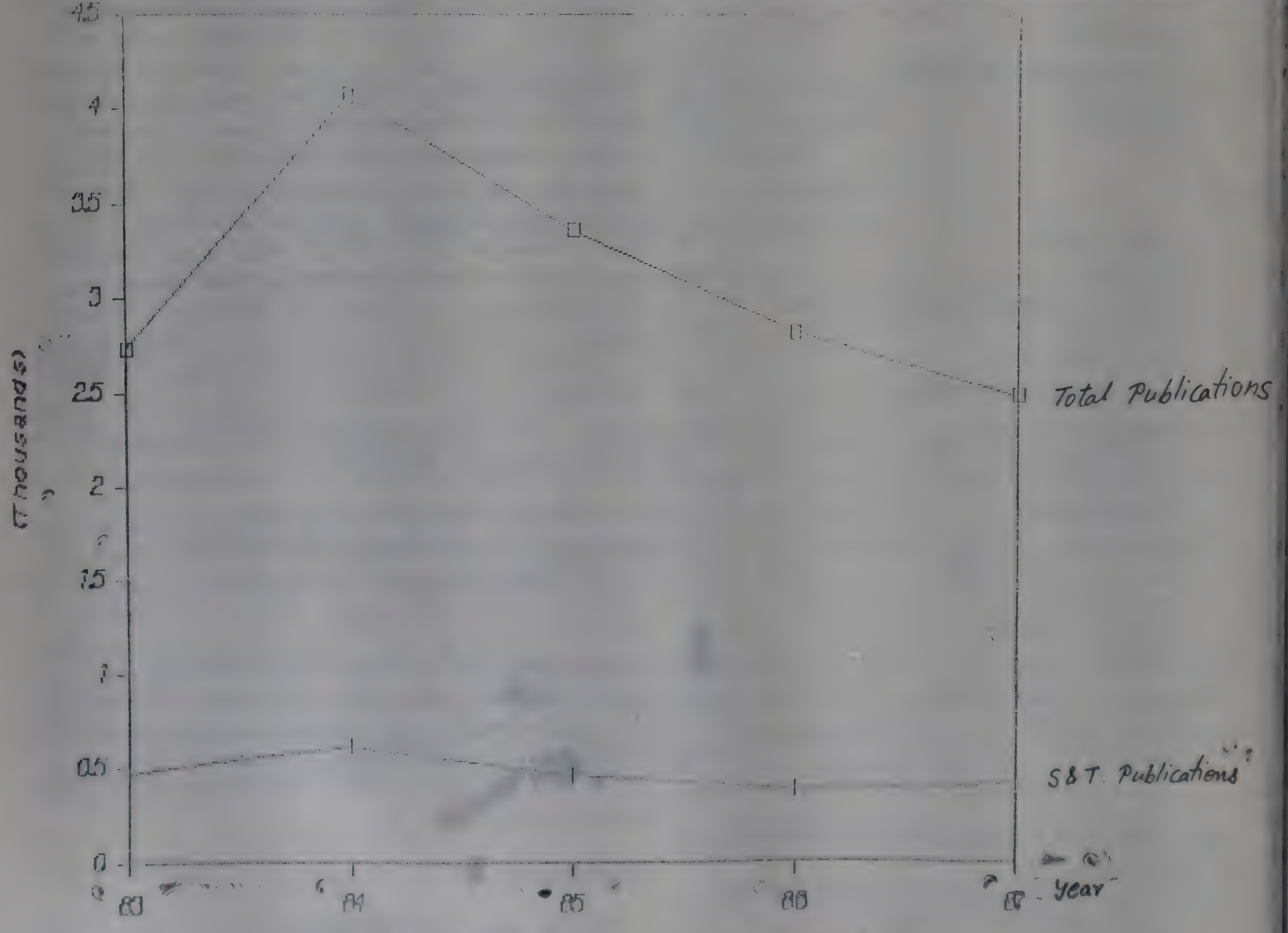

Fig. 1. Year-wise Breakup of Indian Book Production.

The above Table shows year-wise break-up of S & T books in 7 subject groups. Some subjects like Mangement, Rural and Urban development etc., which are accounting for a small percentage of total S & T publications have been grouped under 'Others' category. From the above Table it is clear that Agricultural Sciences are accounting for approx. 27% of the total S & T books, followed by Engineering books which account for 17%.

Observations

1. The study shows that the S&T publications form 15% of the total books listed.

2. Even though there is a fall in the total No. of books listed for the years 1984-87, the percentage of S & T books has slightly increased.

3. The Indian S & T publications are rich in Agriculture, Biological and Geological sciences.

4. Most of the S & T publications listed are about the resource mapping of India like flora and fauna of various regions, the mineral exploration, farming methods on various soil types and in different climatic conditions.

5. Although it is not reflected in the study we have observed that U.S. is also interested in procuring books on regulatory information of the Govt. of India and State Govts. from time to time on subjects like Wild Life, Forestry, Ground Water Resources, etc.

6. Some of the important S & T publications noticed during the study are given as a bibliography in Appendix 1.

APPENDIX I

Important Indian Books on Science and Technology published during 1983-1987

1. **Ali, Salim A.**
Handbook of the birds of India and Pakistan : together with those of Bangladesh, Nepal, Bhutan and Sri Lanka/ Salim Ali and S. Dhillon Ripley.—Delhi : Oxford, 1983—xlii, 737p.
2. **Banerjee, Brojendra Nath**
Bhopal gas tragedy : accident or experiment/Brojendra Nath Banerjee—New Delhi : Pacibus Pubs. and Dist., 1986—281p.
3. **Bhide, A.D.**
Solid waste management in developing countries/A.D. Bhide, B.B. Sunderesan—New Delhi : INSDOC, 1983—222p.
4. Biogas handbook.—Pilot ed.—Bombay : Tata Energy Research Institute Documentation Centre, 1982—133p.
5. **Bose, Jagadish Chandra, Sir, 1958-1937.**
Life movements in plants / by Sir Jagadish Chandra Bose—Delhi : B.R. Pub. Corp., 1985—x, 251p.
6. Computer simulation/edited by N. Seshagiri, R. Narasimha—Bangalore : Indian Academy of Sciences, c 1979—171p.
7. **Gopalachari, N.C.**
Tobacco/N.C. Gopalachari—New Delhi : ICAR, 1984—327p.
8. Growing focus on Antarctica/edited by R.C. Sharma.—1st ed—New Delhi : Rajesh Publications, 1986—xxxiv, 286p.
9. **Heptulla, Najma.**
India's progress in science and technology : continuity and change/Najma Heptulla—New Delhi : Oxford & IBH Pub. Co., c 1986.—xiv, 117p., [12]p. of plates.
10. History of astronomy in India/editors, S.N. Sen, K.S. Shukla—New Delhi : Indian National Science Academy, c 1985—525p.
11. **Iyer, K.V.**
Pollution control in industry/K.V. Iyer, L.R. Kumar Delhi : K.V. Iyer Assoc., 1986—xvi, [503]p.
12. **Jaggi, O.P.**
History of science and technology in India/by O.P. Jaggi: foreword by D.S. Kothari—Delhi : Atmaram, 1969.
13. **Kothari, D.S.**
Atom and self/by D.S. Kothari—Bombay : Bharatiya Vidya Bhavan, 1983—xv, 58p.—(Meghnad Saha Medal Lecture; 1978).
14. **Maheshwar Dayal, 1915—**
Energy today and tomorrow/Maheshwar Dayal—New Delhi : Publications Division, Min. of Inf. & Broadcasting, Govt. of India, 1983—102p.
15. **Menon, M.G.K.**
Technology for progress/M.G.K. Menon—New Delhi : Training Division, Dept. of Personnel and Administrative Reforms, Govt. of India, 1983—34p.
16. **Mukherji, Visvapriya.**
Jagadish Chandra Bose / Visvapriya Mukherji—New Delhi : Publications Divisions, Min. of Inf. & Broadcasting, Govt. of India, 1983—vi, 128p.
17. **Narlikar, A.V., 1940.**
Superconductivity and superconducting materials/A.V. Narlikar & S.N. Ekbote—New Delhi : South Asian, c 1983—xi, 294p.
18. Profiles in scientific research : contributions of the fellows—New Delhi : Indian National Science Academy, 1986—2v.
19. **Ramanna, Raja, 1925—**
A 15-year programme for nuclear power in India/Raja Ramanna—New Delhi : Indian National Science Academy, 1984—ii, 34p.
20. **Randhawa, M.S., 1909—**
A history of agriculture in India/M. S. Randhawa—New Delhi : ICAR, 1980.
21. Science, development and environment/edited by V.P. Agrawal, S.V.S. Rana—Mazaffarnagar : Society of Biosciences, 1987—iii, 332p.
22. Science in India : 50 years of the Academy/edited by C.N.R. Rao, H.Y. Mohan Ram—New Delhi : Indian National Science Academy, 1985—142p.

INDIAN COUNCIL OF AGRICULTURAL RESEARCH

Jawaharlal Nehru Awards for Outstanding Post-graduate Research in Agriculture 1988

The Indian Council of Agricultural Research invites applications from post-graduate students who have obtained their Ph.D degree during the year 1987 in the fields of Agriculture/Animal Sciences (including Fisheries) and home science for "Jawaharlal Nehru Award for Outstanding Post-graduate Research in Agriculture-1988". There will be ten prizes of Rs. 5,000/- each for outstanding research work of the following nature :

"Which may have bearing on finding a solution to any important national problem in the field of Agriculture, which is likely to have an impact on increasing the production or improving the quality of any important crop for human nutrition or animal productivity or increasing the technological efficiency of any process of economic importance connected with agriculture".

Candidates shall be required to submit the following documents through the Head of the Institute from where the thesis has been obtained :

1. A copy of the thesis submitted by them for the award of the doctoral degree.
2. A certificate from the guide of the candidate for Ph.D degree stating the extent to which the work is the candidate's own contribution.
3. 6 copies of the synopsis indicating precisely and in concise terms the work done by the candidate.
4. 6 copies of the bio-data with complete address for correspondence with telegraphic address if possibles.

The certificate awarded to the candidate for Ph.D. degree may also be sent. There is no prescribed proforma for applying for this award. Each candidate will be judged on the basis of the originality and the applied value of the investigations as revealed in the thesis submitted by him. In all matters relating to the award the decision of the Council shall be final and no correspondence on this account will be entertained.

Application with complete documents as mentioned above addressed to Sh. R. C. Mishra, Dy. Secy. (A), Indian Council of Agril. Research, Krishi Bhavan, New Delhi-110001 should be sent so as to reach on or before **31st March 1988**. The last date for candidates in the Andaman and Nicobar Islands, Lakshadweep State/Union Territory in the North Eastern Region, Ladakh Division or J&K State and Sikkim is **15th April, 1988**. The award winning thesis will be retained by the Council for record. In case the application is not accompanied by a copy of thesis and the required number of synopsis and bio-data, the application is liable to be rejected at the screening stage.

Hari Om Ashram Trust Awards for the Year 1988

Nominations are invited for the Hari Om Ashram Trust Awards for the year 1988. Three awards of the value of Rs. 10,000/- each in cash or kind or both are given every year for outstanding original research, fundamental or applied including inventions, discoveries etc. leading to results of practical value in any field or subject within the purview of research in agricultural sciences, forest farming and social forestry and animal sciences (including fisheries).

All scientists engaged in research in the fields of agriculture, forest farming and social forestry, animal husbandry and allied sciences in India shall be eligible for the awards. The results of research achieved/

contributions made during the five years preceding the year of the award shall only be considered for the awards. In the case of claims based on evolution of new varieties/strains, the final trials should have been completed within five years preceding the year of award.

Nominations can be made amongst others by Vice-Chancellors of agricultural universities or other universities having faculty of agricultural or biological sciences, Directors of Research Institutes including principles of agricultural and veterinary colleges, Presidents of scientific societies, academies and heads of the principal scientific establishments in the country.

Nominations for the awards should be supported by a statement of work, achievement accomplished or performed by the candidate who is being nominated and a reasoned justification for the nomination together with reprints of publications or other supporting data.

The last date for refeiving nominations for the awards is **31st March, 1988**. The last date for candidates in the Andaman and Nicobar Islands, Lakshadweep States/Union Territory in the North-Eartern Region, Ladakh Division of J&K States and Sikkim is **15th April, 1988**. Five copies of the nominations on the prescribed proforma for the award should be sent a sealed cover marked 'Confidential' to Shri R.C. Mishra, Deputy Secretary (A), Indian Council of Agricultural Research, Krishi Bhavan, New Delhi-110001. The copy of the proforma can be obtained from him by sending a self addressed envelope in the size of 27 cm x 12 cm. Applications/nominations received without five sets of reprints of publications are liable to be rejected at the scrutiny stage.

Dr. Rajendra Prasad Award for the Best Original Standard Works in Hindi on Agricultural including Animal Sciences and Fisheries—1988

Applications are invited for Dr. Rajendra Prasad award for the year 1988 for standard original books/manuscripts in Hindi on agriculture, including animal sciences and fisheries published/written between April 1987 to March 1988. Books written by more than one author can also be considered. Five copies of the books/manuscripts for the award may be sent in a sealed cover marked 'Confidential' to Shri R.C. Mishra, Deputy Secretary (A), Indian Council of Agricultural Research, Krishi Bhavan, New Delhi-110001, latest by **31st March, 1988** in a prescribed form obtainable from him. The last date for candidates in the Andaman and Nicobar Islands, Lakshadweep States/Union Territory in the North-Eastern Region, Ladakh Division of J&K State & Sikkim is **15th April, 1988**.

In all matters relating to the award the decision of the Council shall be final and no correspondence on this account will be entertained.

Rafi Ahmed Kidwai Memorial Prizes for Agricultural Research for the Biennium 1986-87

Nominations are invited for the Rafi Ahmed Kidwai Memorial Prizes for Agricultural Research for the biennium 1986-87 carrying an amount of Rs. 10,000 (Rupees ten thousand only) in cash or kind or both, a citation and a certificate.

The award is given once in two years to Indian Scientists for outstanding research, fundamental or applied, including inventions, discoveries, etc. leading to results of practical value in any field or subject within the purview of research in agriculture, animal husbandry and fisheries, including agricultural, economics, agricultural statistics and nutrition. Only results of researches/contributions made during the five years preceding the year of award shall be considered for the award. It the case of claims based on evolution of new varieties/strains, the final trials should have been completed within five years preceding the year of award.

Nominations can be made amongst others by Vice-Chancellors of agricultural universities/general universities with faculties of agricultural or biological sciences, Directors of research institutes, including Principals of agricultural and veterinary colleges, Presidents of scientific societies and academies and heads of the principal scientific establishments in the country such as CSIR, BARC etc.

Nominations for the award should be supported by a statement of work, achievement accomplished or performed by the candidate who is being nominated and a reasoned justification for the nomination together with reprints of publications or other supporting data. In all matters, decision of the Council shall be final and no correspondence on this account will be entertained.

The last date for receiving the nominations for the award is **31st March, 1988**. The last date for candidates in the Andaman and Nicobar Islands, Lakshadweep States/Union Territory in the North-Eastern Region, Ladakh Division of J&K State & Sikkim is **15th April, 1988**. Proposals (in quadruplicate) on the prescribed proforma for the award should be sent in a sealed cover marked 'Confidential' to Shri R.C. Mishra, Deputy Secretary (A), Indian Council of Agricultural Research, Krishi Bhavan, New Delhi-110001. The copy of the proforma can be obtained from him by sending a self addressed envelope in the size of 27 cm x 12 cm. Applications/nominations received without four sets of reprints of publications are liable to be rejected at the scrutiny stage.

Fakhruddin Ali Ahmed Award for Agricultural Research in Tribal Areas for the Biennium 1986-87

Nominations are invited for the Fakhruddin Ali Ahmed Award for agricultural research in tribal areas for the biennium 1986-87. Two prizes of the value of Rs. 10,000 (Rupees ten thousand only) each in cash or kind both will be awarded for outstanding original research carried out in the tribal areas in the field of agricultural sciences and animal sciences including fisheries.

All research workers engaged in research in agriculture, animal husbandry, fisheries and allied sciences in tribal areas (tribal areas for this purpose are those notified by the Ministry of Home Affairs, Govt. of India) shall be eligible for the award. The results of research achieved/contributions made during the five years preceding the year of the award shall only be considered for the award. In the case of claim based on evolution of new varieties/strains the final trials should have been completed within five years preceding the year of the award.

Nominations can be made amongst others, by the Vice-Chancellors of the agricultural universities or other universities which have a faculty of agricultural or biological sciences, Directors of research institutes including Principal of agricultural and veterinary colleges, Presidents of scientific societies, academies and heads of principal scientific establishments in the country such as Council of Scientific and Industrial Research, Bhaba Atomic Research Centre etc. Each nomination for this award should be accompanied by a detailed statement of work and attainments of the nominee and a reasoned justification for the nominations together with the reprints of publications or other supporting data. Also, a certificate of residence in the tribal area where the work has done obtainable from Head of the Institutes, should be appended. It is emphasised that the award is intended for recognising outstanding research carried out in tribal areas, and hence the scientist(s) concerned should have lived and carried out the research in any of the tribal areas notified by the Ministry of Home Affairs.

The last date for receiving nominations/applications is **31st March, 1988**. The last date for candidates in the Andaman and Nicobar Islands, Lakshadweep States/Union Territory in the North-Eastern Region, Ladakh Division of J&K State & Sikkim is **15th April, 1988**. Four copies of the nominations on the prescribed proforma for the award should be sent in a sealed cover marked 'Confidential' to Sh. R.C. Mishra, Deputy Secretary (A), Indian Council of Agricultural Research, Krishi Bhawan, New Delhi-110001. The copy of the proforma can be obtained from him by sending a self-addressed envelope in the size of 27 cm x 12 cm. Nominations received without four sets of reprints of publications are liable to be rejected at the scrutiny stage.

ICAR Awards for Team Research for the Biennium 1987-88

Nominations are invited for ICAR Award for Team Research for the biennium 1987-88. The award is given once in two years to interdisciplinary teams of research workers for outstanding research work in the field of agriculture including agricultural economics and statistics., animal husbandry and fisheries in the form of a scroll of honour and a medal to each member of the award winning team.

All scientists engaged in research in the field of agriculture, animal husbandry and fisheries sciences in India shall be eligible for the award. The award of each prize shall be made for notable and original inter-disciplinary research both fundamental and applied as reflected in books, monographs, papers or other forms of published account of outstanding research work, inventions or discoveries. In the case of contributions like new crop varieties or new breeds of animal at least 3 years' date on the performance of the strains will have to be provided. The results of research achieved/contributions made by the team should be during the five years preceding the year of award.

Nominations can be made amongst others by Vice-Chancellors of agricultural universities or other universities having faculty of agricultural or biological sciences, Directors of research institutes including Principals of agricultual and veterinary colleges, Presidents of scientific establishments in the country such as CSIR, BARC, etc.

Nominations for the award should be supported by a statement of the inter-disciplinary team work, achieved, accomplished or performed by the team which is being nominated and a reasoned justification for the nomination together with the reprints of publications or other supporting data. In all matters relating to the award the decision of the Council shall be final and no correspondence on this account will be entertained.

The last date for receiving the nominations for the award is **31st March, 1988**. The last date for candidates in the Andaman and Nicobar Islands, Lakshadweep States/Union Territory in the North-Eastern Ragion, Ladakh Division of J&K State & Sikkim is **15th April, 1988**. Six copies of the proposals on the prescribed proforma for the award should be sent in a sealed cover marked 'Confidential' to Shri R.C. Mishra, Deputy Secretary (A), Krishi Bhavan, New Delhi-110001. The copy of the proforma can be obtained from him by sending a self-addressed envelope in the size of 27 cm x 12 cm. Applications/nominations received without six sets of reprints of publications are liable to be rejected at the scrutiny stage.

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THE FUTURE OF THE BOOK

S.S. Murthy*
V.K. Rangra**

The book is the most powerful medium which has revolutionised the thoughts and ideas of man and has played a pivotal role in the religious, social, economic and technological developments in the world. It has been a convenient mode of preserving facts and ideas and making them readily available to millions of readers. In its physical form, as commonly known and used, it is the printed matter on paper sheets held together and protected by a cover. But in fact, it is much more than that. Book symbolises ideas, and thought processes which the author wants to convey to its readers. The book has undergone changes over years, in its content, presentation of ideas and its physical form.

History

Let us consider how the book has changed in shape during several periods of time. Man first started writing with his finger on earth but the necessity to preserve the writing made him think of using clay tablets. Thus we find that in ancient civilization, the Sumerians, Babylonians and Assyrians wrote on clay tablets. Some of the clay tablets from the library of Ashurbanipal of Nineveh are still preserved in the British Museum. The Egyptians brought into existence the roll form of book using the papyrus reed which abounds along the river Nile. The word paper had its origin in papyrus as the two products resembled each other. In the 2nd century BC Eumenes II, King of Pergamus finding papyrus hard to preserve, introduced leather or parchment. This writing medium offered both of its sides for writing purpose and being flexible could be folded and stitched for proper handling. The roll form of book whether of papyrus or parchment measured about 16 ft. The roll was held in the left hand and unrolled with the right. It was wound on wooden handles and fitted with title tags and storage cases. Plutarch stated that 200,000 book rolls were transferred from Pergamene library to Alexandria as a gift from Antony to Cleopatra. The Romans made further improvements by using smooth wooden boards coated with wax and hinged on thongs at the back so that they could close and protect the writing inside. This was called Codex—a Latin word for book.

The Chinese wrote or incised on animal bones or tortoise shells. Although inscriptions were made on bronze, stone and pottery, the direct ancestry of Chinese book is traced to bamboo or wooden slips and silk rolls. Indians in ancient and medieval period used plam leaves known as tala patra and bhuraj patra. After the death of Buddha, the Tripitaka was first written on palm leaves. A detailed description of bhuraj patra book called 'Punthi' was given by Alberuni in his travelogue. Ashoka spread the message and teachings of Buddha as inscriptions on pillars and stopas.

Many of the medieval books made in monasteries and royal courts were richly decorated and profusely illustrated. A ninth century volume of the four Gospels available in the Pierpont Morgan Library in New York, had 327 gems and raised figures of hammered gold. A sixteenth century book Hamzanama runs into 14 volumes and had hundreds of illustrations which were considered to be the best of the Mughal paintings.

The paper, the most popular medium came later. It is believed to be invented by a Chinese called Tsai-Lun in 105 AD and by the sixth century it was put into common use. A famous book of 868 AD, called Diamond Sutra which is presently preserved in the British Museum is a roll book made up of seven sheets of paper pasted end to end.

To John Guttenburg of Mainz goes the credit of inventing printing, who produced between 1450-1455, the 42-line Bible which was the first printed book in the world. William Caxton who set up shop at Westminster, printed the first book in England in 1477 entitled 'Dictes or Sayengis of the Philosophers'.

Present Scene

The present book on printed paper has stayed for quite a long time with its tremendous growth rate. Prof. Allen Kent has estimated that there are about 30 million printed books (titles) in the world since the times of Guttenburg. According to Verner W. Clapp the world publication has been doubling every forty

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five years during the last five centuries—doubling roughly three times as fast as the growth of world population. To overcome the problem of housing and transportation of the ever increasing bulk of printed matter and also to maintain secrecy in official records, the microphotography came into use to reduce the size of the documents. The first large scale use of microphotography was made for sending messages through pigeons as a carrier during the Siege of Paris in 1870. Through microphotography the book is miniaturised to take the form of microfilm, microcard, microfiche etc. A normal microfiche of size 105 mm x 148 mm i.e. A-6, contains 98 pages of text. An advanced version of microfiche called superfiche may contain as many as 1000 pages. A 100-ft microfilm roll holds about 1000 pages. A microcard may hold 100-120 pages of the original text. The micrographic material commonly known as microforms cannot be read through naked eye as we read books. Reading devices like microfilm/ microfiche reader are to be used for reading them. Modern information centres depend more and more on microfiche as an economic means of document preservation and supply. The National Technical Information Service (NTIS) of USA, the largest holder and supplier of technical reports literature, has in stock over 1.5 million documents in microform. A number of publishers are bringing out their publications in microform in addition to paper form.

A new device in microprinting was evolved by George Davies and Hedda Wertheimer in which the normal print size is reduced to 10:1 and is printed on PVC paper. The standard reader is a pair of wide coverage binoculars. By this process the Oxford English Dictionary was reduced from 13 to 2 volumes.

The book changed its shape and form to meet the needs of special readers such as the physically handicapped. The book appeared in Braille which the blind use extensively. Sometime back a team of Yugoslav scientists invented a book that talked. It was based on the system of transferring sound to paper similar to the one used in making talkies. The reader moves a device which looks like an ordinary pen over the text, the optically printed lines, are transmitted to a photoelectronic detector whose signals are intensified and then transmitted to a loudspeaker, transistor or radio set as desired.

The emergence of other information technologies like those of computers, has added new dimensions to the form of the book. The computer because of its advantages of large storage capacity, high speed of retrieval, fast manipulation of data, and the transportability of data to distant places through telecommunication networks, is now widely used as a mediu for recording and retrieval of information. Accordin to F.W. Lancaster who is the author of the concept o paperless society, the paper will cease to be th medium of storage and transfer of information an will be replaced by electronic media by the end of thi century. A large number of journals and referenc books are already being published in machine readabl media. Almost all important indexing/abstractin journals are now available in the form of computerise data bases and can be accessed online i.e. throug telecommunication networks.

Besides bibliographic databases, some of the full text databases like LEXIS (on legal system) is available online. The World Book Encylopdaedia comprisin ten million words is available online through computer network in Europe. Network subscribers i various advanced countries today have all kinds o books available on their home computers. The lates is Blind Pharoah a novel by Burke Campbell wh spent 62 hours composing it on his Apple III computer and made it available immediately over a electronic network. The Oxford English Dictionar along with its four supplements comprising som 22000 pages is being put on the computer.

Video technology because of its capacity to simultaneously record picture and sound, became mor popular for recording books especially the works o art. The video cassettes are ideally suited for thi purpose because of their size which is almost the sam as that of a book and their reading on TV scree through a Video Cassette Player (VCP). The H.W Wilson Company has brought out "American Storytelling" series in 8 video cassettes each of 30 minute duration.

Recently another medium combining the advantages of computer and video technology with vas amount of storage capacity has come into use in th form of Compact Disc. A version of this disc, calle CD-ROM (Compact-Disc-Read-Only-Memory) i getting more and more popular as a medium of storage and retrieval of information containing hig quality colour pictures and text. The common siz of a CD-ROM is 5¼ inches in radius and can carr about 30,000 pages of text. The CD-ROM syste comprises the CD-ROM drive, a personal compute with monitor and keyboard and an optional printer The Domesday book of William, the Conqueror o the Great Britain has been put in a CD-ROM system in the Domesday project. It contains over 50000 sti rame pictures with complete map coverage of the Great Britain at 1 : 50,000 scale, text, moving film sequence and sound. Some encyclopedias such as Grolliers Academic American Encyclopedia (21 vols), McGraw Hill Encyclopedia of Science and Technology (1987 edition) (20 vols) and other publications with large volume of data are being published on CDROM.

We have now seen how the book has travelled from clay tablet (CT) to compact disc (CD) every time adding new features. After the invention of microforms the printed book continued side by side. The extinction of the printed book cannot be visualised in the near future. The conventional book will survive the onslaughts of the electronic media. All these new electronic media require intermediate equipment for reading which causes strain to the eyes if read for longer periods. The book on the other hand is convenient to read without any equipment (except spectacles for some people). It can be read in arm chair, bed or in journey, and several books can be used simultaneously and compared. The most important factor in favour of the printed book is the convenience in reading.

From the point of usage the books may be broadly categorised into three types i.e. entertainment, reference and educational. The entertainment part may be best covered by video/television, while the reference publications (encyclopedias, handbooks, journals, etc.) by computerised databases and the educational publications specially textbooks and light reading material may continue to be in printed form.

In the developing countries where literacy is one of the most essential requirements in the national development, low-cost educational material will be needed on a large scale. There is no dispute about the role of television network in the spread of education, but the importance of printed material for the classroom and for reading in leisure cannot be taken lightly.

Future

The printed book is not going to vanish in the near future. It is going to stay. It may not be necessary to print the book through the conventional letter press when more modern systems for computer-based composing, offset printing and desk-top publishing are available, which will reduce the cost of book production and improve its quality. □

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THE FUTURE OF THE BOOK

T.K.S. Iyengar*

Introduction

The automated library, individually profiled journals delivered electronically on demand, word processing, SDI-profiling, key-wording, multiplexing, telefacsimile devices, cable television, electronic : mail, speech synthesis, artificial intelligence, interactive videodisk systems, automated translations, online access thru satellites, holographic media and robotics have all come. All of these innovations share in common, a technology centred around the computer and telecommunications industries and their abilities to provide communication through media other than print or paper.

Whatever happened to that paperless Society wherein several forecasts made that it would evolve during this decade ? Certainly, Desktop computers have become more powerful, and useful, less costly, and more widely used. Inspite of these the paperless society has not come about. On the contrary, paper consumption has increased because most people still want to view and distribute computer-generated information on a hard copy. The traditional view that paper is an ideal medium for working with and transporting information still prevails. In the following pages an attempt is made to focus attention on future of the book and its survival despite the onslaught of the electronic media.

Development of Electronic Media

The rapid developments in the fields of electronics and telecommunications have changed already, and will change more, the way in which information will be generated, stored, distributed and used. The availability of relatively cheap electronic equipment for producing and consuming information, like word processing and type setting equipment, microcomputers, viditext, and the like and at the moment—more expensive ones like videodisk, will not only influence the way people get their information, but also the daily operations at the work floor and the Library. Library workers will have to learn to use the new tools, how to integrate them into their work, how to benefit from them. They will be confronted with user (un) friendliness of hardware and software, with (the lack of) standardisation in these areas, cost/benefit analysis of what they buy and the problem of choice which software on which machine with which information will best suit their short term needs, how does this choice fit in to the still going on new developments ? An immense task in the field educating people of these new tasks lies open.

While it is impossible to deal with the entire range of electronic media products, the following few may be considered as representative samples and they are briefly described here : optical storage; Data on Diskette/CD-ROM; Printing and Publishing Technologies; Desktop publishing; Electronic Composition and Micropublishing.

Optical Storage

The last two years have shown a tremendous development in the technologies of optical storage. A tidal wave of publications exists on these matters and the unsuspecting reader is likely to be baffled by the terminology in use—DRAW, WORM, CD-ROM, laser disk, etc. Are these mere slogans or do they really mean something ? Here is given a brief review of the current technology and then to concentrate on the possible uses of CD-ROM in libraries and documentation centres with some emphasis on those in developing countries. The future CD-ROM may even eliminate on-line access. We can forget about satellites and telecommunications when laser written CD-ROM database on silver diskettes are available.

Optical media can be divided into two main Classes : Digital and Analog. Further, there are three sub-classes for each main class : read only, write-once and erasable. With these distinctions every sort of optical medium can be classified as follows :

(a) **Read only Analog Disk** : These media, frequently called laser videodisks, are as such the oldest form of optical storage. The most common use of these disks is in the home-video market, although there are some sophisticated professional applications. An

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example of the latter are the products of Laser-Data, which are published by companies such as Information Access Company, Bowker, LSSI etc.

(b) **Read only Digital Disks** : The best known example of this kind of disk is the compact Disk (DC), already well penetrated in the home audio market and now starting to become a candidate for mass storage of digital data (Compact Disk Read only Memory, CD-ROM).

(c) **Write once Analog Disks** : These disks are currently only used by products of video disks for mastering purposes, and are therefore irrelevant within the present context.

(d) **Write once Digital Disks** : These are disks which are often called by ominous names such as WORM or DRAW (write once Read many and Direct Read After Write) or ODDD (Optical Digital Data Disks).

(e) **Erasable Disks** : At the moment there are no commercial applications of erasable disks, although the industry is working hard to conceive the product. The predictions are that in about three years time they will be on the market. In contrast to the media mentioned so far, the erasable disk makes use of a form of a magnetic storage of informations; laser raises the temperature in the magnetic layer, thus changing the reflection.

Applications of CD-ROM in Libraries and Documentation/Information

Several applications of CD-ROM technology are on the market, and more are being developed or are in a test phase. Many applications are notably in the area of (bibliographic) databases. To give the reader an idea a short list of such applications is presented here.

Datexy produces a corporate information database. Digital Equipment Corporation (DEC) has brought several databases on the market (subsets of compendex, such as, aerospace engineering, electrical and computer engineering, chemical engineering; subsets of NTIS, such as, computers, communications and electronics; environmental health and safety etc.).

Silver platter, a well known company in this field produces psyclit, Eric, Pais, Embase, LISA etc.

Library Corporation has introduced bibliofile, a MARC—database with 1,400,000 records for catalogue-production.

Access Innovations together with Silver Platter introduced the NICEM-database (National Information Centre for Educational media), now known as A. V. online.

Whitaker has a test copy of British Books in print ready.

Derwent, together with the French company DARC have submitted a proposal for a database of chemical formulas on CD-ROM to the EEC.

The examples mentioned above are clearly in the field of database publishing. The list can be extended without effort to a much longer one, and now projects are being announced every month.

The application of Brodart Corporation is of a completely different nature. They have developed an online public catalogue which can be easily consulted with the aid of a 10-function keyboard.

Of course, a patriarch of the CD-ROM applications also exists : the Grolier Encyclopaedia. Very recently Sanshusha Publishing Company in Tokyo produced a dictionary of Science and Technology on CD-ROM in the Japanese, German and English languages.

Economic Viability of CD-ROM Applications

On the face of it CD-ROM seems to have made it. Nevertheless one can have doubts as to whether the above mentioned examples are economically viable for the library and information market. After a closer and careful look at what they really offer by way of their usefulness, it can safely be concluded that the CD-ROM is only suitable for larger libraries with a fairly healthy budget though it is obvious that the Lepac option could be a very serious competitor for the traditional COM-catalogue.

CD-ROM Vs Future of Book

What are the advantages of databases on CD-ROM for libraries and documentation information centres By the look of it : not many. The information presented is incomplete, because it is confined to a restricted field of Science and to a couple of years of publications, always missing initial investment in hardware amounts to several thousands of dollars. I short one has to conclude that CD-ROM is a freak of fashion.

However there are some reasonable applications in combination with online access, as opposed to instead of online access.

A library that performs many searches on online databases has the opportunity to prepare the online search with the aid of a CD-ROM version. In that way there are no communication-costs. If the search with the profile can be edited and stored the 'real' database can be searched online with this profile. The result : a very short, and therefore cheap search with fairly good results. A thorough cost-analysis will establish if this kind of application would be profitable for the institution. The online public access catalogue will also require a very thorough cost benefit analysis.

The other applications such as the encyclopaedia and the dictionary are not so subject to time. Such publications do not demand revision every month.

Data on Diskette

Commercially available data on diskette has become available only in the past few years. It does not appear to be used widely and may be used only as a temporary alternative between the current choice of online access by time-sharing or the future choices of laser disks. At present, duskettes provide useful alternative for database access.

For most of us, "online searching" is synonymous with accessing remote databases through time sharing systems. Our definition of searching is being broadened by improvements in data storage and the availability of microcomputers. Laser disks now allow us to store large databases locally without the problems associated with maintaining files of byte size. But commercial laser disk systems are still exceptional and expensive. As we wait for laser disk technology to mature, a familiar storage medium, the microcomputer diskette, will allow us to experiment with maintaining and searching commercial databases in house.

Commercial databases in diskette format have a number of advantages over the traditional dial up access format. These advantages include :

* Elimination of connect costs of time sharing systems.

* Accompanying software that allows extensive manipulation of the data or are designed to run with standard spread sheet and database management programs.

* Ability to purchase multiple copies for a nominal cost or make additional copies through licensing agreements. Multiple copies allow the data to be distributed to users.

* Database segmentation or taking a piece from a larger database. This reduces the need to down load information through dial-up systems.

Their disadvantages include :

* Limited storage capacity of the diskettes. The double sided IBMPC diskette, for example, holds about 350,000 bytes (roughly 100 typewritten pages). Of course, multiple diskettes can be loaded on to microcomputer hard disks.

* The need for IBM compatible microcomputers since most data on diskette is only for IBM equipment.

Desktop Publishing

Desktop publishing is a phrase coined by Paul Brainered of Aldus Corporation, publishers of Page Maker, the best selling page layout program for personal computers. A desktop publishing system consists of a personal computer using a program that allows you to display text and graphics elements on the screen, edit and move the different elements around, and print them out on a dot-matrix or laser printer. Most systems make use of laser printers, hard disks, and some use special scanners that convert drawings and photographs into digitally stored immages that can be incorporated in the document. The final print out is used as a camera-ready master for duplication. Some graphics shops use the laser output as a proof sheet before the master is type set on a Linotronic or other typesetting machine. Because the results are so impressive and comprehensible to computer novices and experts, this application has given rise to a new market for the computer industry.

Nobody talks much more about the paperless society, even with the increased use of computers. Printed material is still the most common means of communications for many organisations. You and your library will be judged by the reader of each brochure, letter, or memo, exclusive of content.

Librarians know the substance is not lacking in what they publish, but sometimes the form needs more enhancement. If you want to be remembered in a positive way, you can't send out an important report printed on a dot matrix machine. Until this year daisy wheel printer was acceptable, but now the ente has been raised; people expect laser output for quality work. If you print down loads from sessions in draft format, consider the impression the same material will make if it looks typeset. An expensive report from a consultant carries more weight if produced on a laser printer. It is not claimed that it will take less time to write than a document produced the old way, but it will print more quickly and have more impact on your client, or the reading public.

Micropublishing—Microfilm/Microfische Technology

Changes in publishing methods were foreshadowed by the promoters of the project Intrex at the Massachusetts Institute of Technology. In all probability the major publishers will be able to supply copies of most of their publications in Microform and it is highly likely that this form will replace book acquisitions. They also predicted that journal publishers would publish reprints of articles using the microfiche medium. Libraries, it was thought, would buy these microform reprints only of the articles they wanted and would not continue to bind and retain complete volumes of learned journals. Hardware Microfilm/Microfische readers are available. This has to be related to users psychology.

Fascimile transmission online, based on computer access to micro-form, would be the norm. Obviously we have gone only some of the way along with this route. No economical method has been found to interconnect machine based library systems so as to provide guaranteed rapid access to the full text of documents by electronic means. There are some monograph publications available in printed paper formats with microfiche editions as the alternative. Secondly, some new publications appear only in microform. Thirdly, some reprints appear only in microform. Fourthly, there are some periodicals available at choice in microfiche or paper. Fifthly, there are journals with the full text available only on microfiche. Finally, there are online services retrieving from abstracts in computer storage and some of these have source document capability retrieving from microfiche storage. If we look at each category of micro publications to be found in libraries, we can discuss the merits of each for particular purposes. Yet the print media remains.

Impediments in the Use of Electronic Media Products

Technology diffusion may be hampered by more than one factor : industrial secrecy, military secrecy, and the high cost of technology acquisition are well known factors. New design and production ideas developed in small firms may remain unknown—except in a small circle because the entrepreneurs, especially in developing countries, may not have the experience, or the whereto promote and disseminate the know-how. Users of technology regardless of their geographical location, level of development, and particular needs are often found to be unaware of the existence and/or the value of technological knowledge that can be of practical use. This may be partly due to the inadequacy of the information handling systems and partly due to the potential users not being adequately prepared to make the best use of the system and services. And often users lack confidence in the technological information systems, sources and services.

The technological information services available suffer from the exclusiveness in that it may be largely oriented to meet the needs of the elite group of Academic specialists or those using sophisticated or capital intensive technology, etc., leaving out the needs of the rural/urban poor of developing countries. This factor becomes all the more important in the context of the current reorientation of development programmes to the disadvantaged sections of the society.

A worrying feature of the current scene is that work on programmes and data resulting from computer activities in different institutions are not, in many instances, compatible. The need for standardization commands urgent attention. It is unlikely that our well established book holdings and printed records will be profoundly affected in a short time.

Indian Scenario

Like many other countries and regions of the world India is also experiencing profound change in its scientific, industrial and cultural life as a result of the introduction of the computer and related information technologies.

Right from the very beginning modern technology seems to have been developed for the developing countries. In most cases the technology is only used in the developing countries after a few years, unfortunately often in the form of 'castoffs'. For this reason i seems necessary to pay some attention to the potentia advantages of CD-ROM for developing countries. CD

OM will be highly effective especially in a country e India. Why aren't our computer manufacturers/PC bricators bring in this technology? What all we need a disc drive suited for CD-ROM optical discs. many databases are available in CD-ROM silver atten laser discs. We can cut down cost of telecomunication links of accessing these databases for which D-ROM discs are available. Why should we invest oney on getting SDI-Tapes when they are available n CD-ROM? Institutions such as NISSAT, UGC ould do some rethinking on this. Online access, that o dedicated line, is very costly for our country. When e same is available in CD-ROM. Sometimes one gets feeling that what we do in Indian Information Science academic exercise only and not service oriented.

Taking a necessarily broad view of the problems acing developing countries in the field of information echnology, the following list will be applicable.

(a) Infrastructural problems, such as, lack of good ommunication facilities; a badly working telephone etwork, no access to satellite communication etc., ven if we want to.

(b) A shortage of skilled labour, in the traditional fields of library and documentation as well as in the field of computers and telematics; no suitable storing facilities for documented information. Lack of coordination between Computer Scientists and Librarians. In other words, more hardware oriented computer specialists would like to take up library jobs.

Information Needs of Developing Countries

D.M. Davies in an excellent article deals with the phenomenon of appropriate information technology. He says amongst other things that developing countries do not have a need for access to the large database from the developed world because the local literature production is not incorporated in these databases and the language in use is not the language of the country itself.

Many projects on information, including in developing countries, have failed because the technology was not adopted to the needs and possibilities of the country. There are however possibilities to introduce modern technology in developing countries provided.

1. It is based on the true needs of the country.

2. It is built from the bottom upwards, which means concentrated on what is available in the right language and there are trained personnel available.

If the picture sketched in the preceding paragraphs is matched to the CD-ROM technology the only conclusion that can be drawn is that developing countries, in particular have to be very careful in introducing this technology, not only because of the costs involved but especially because of the information contents of the products announced so far. There are, of course, possibilities regarding local database production and distribution (*cf.* the Lepac-option of Brodart). A very thorough cost benefit analysis has nevertheless to be made.

It would therefore be a very sensible step if within the framework of UNISIST, one or more trial projects would be set up to test the capabilities of this technology for the developing countries. Only in this way can the true merits of the CD-ROM technology be tested objectively.

On the Survival of the Book

Since at present the printed book can reach a large audience, far larger than any of the new technologies, perhaps this is a good and legitimate use of the printed word. It is difficult not to be sympathetic to this defence. It is not an argument whether to use candles or electricity. It is estimated that over 90% of the capacity for generating, communicating and utilizing information and knowledge, especially in the fields of science and technology, rests with a small number of technologically and industrially advanced countries (some 30 countries with over dollar 8000 per capita income and sharing 35% of the world population burden) and, therefore, developing countries (about 20 countries with less than dollar 500 per capita income and sharing over 60% of the world population burden) have to purchase the knowledge and know-how in the form of books, periodicals, reports, patents, training, expertise and commodity imports : that is, Third World countries have operated at no less a disadvantage even in terms of the traditional information system. It might equally be argued that with the growth of satellite communications this planet will be more equitably spanned.

It has to be noted that the technology and applications of CD-ROM are still in their infancy though the child is growing rapidly and is clothed more and more in ready-to-wear garments. The problems arising from the many incompatible formats of video-tapes and recorders are being avoided in the field of CD-ROM through the energetic standardization activities of the parties involved. Compatibility seems to be warranted. A price decrease might be a result, though it is not very likely in the first two years.

Libraries and Information/Documentation Centres need to be very careful, however, in embracing this new technology. Profound investigations into the relative costs and benefits should be carried out before any decision has to be made. Let us look at the following table :

The Book	Computer Data Bases
1. Relatively low density of data storage.	1. Higher density of data storage.
2. Very portable except in large numbers.	2. Portable, but needs careful handling.
3. Will survive most environments, although life depends on quality of paper, binding, etc.	3. Subject to deterioration and even erasure in some environments.
4. Can be read without intermediate equipment (except spectacles).	4. Needs additional equipment to convert to format suitable for human reading
5. Can be read in an armchair, a desk, in the bed, or wherever convenient.	5. Ease of reading depends on this equipment and its accessibility. Reading must be conducted in an upright sitting position at the computer terminal unless printed text is generated. Computer terminals must be connected to other equipment and are not generally regarded as portable comparing two or more data-bases or parts thereof, the mains flicking between two sets of text on the screen.
6. Several can be used simultaneously and compared.	6. The ease with which this can be accomplished depends on the system.
7. Can be scanned in order to judge whatever is covered in the following few pages, and to review the plan of the book.	7. Additional terminals would naturally facilitate readier ' comparison. Scanning is possible, but usually must be sequential and thus ca be slow.
8. Diagrams and illustrations can be used to amplify and elucidate points.	8. Diagrams are sometime available with graphi facilities, but picture ca not be faithfully repro duced.
9. Can be a work of art, with both a tactile and visual appeal.	9. Computer terminals ar distinctly limited in thi respect. All efforts a improving display of te are rooted in functionali

Also, there has been relatively little progress in th areas of statistical and linguistic analysis of natura languages for meaning. There have been some advance in automatic indexing but there are no theoretica structures formulated yet characterising words and thei interaction with context to the extent that parapharasing may be computed. Computers are not yet equippe to deal with meaning. Now then, what do we do whe scripts of several languages are involved. Softwar technologists have to do this home work rather tha writing books on programming.

Conclusion

The literature generally reflects the conclusion tha conversion to paperless systems will require society t be more resilient. Has computerization produced a ne vulnerability for society? And are individual member of society able to absorb large disruptions withou grave and lasting societal consequences ? The answer t this question is that modern societies, at least the United States, appear to be resilient and adaptable to th new technologies. Hence the electronic media at leas for the present may not be suitable to developin countries, especially India.

Specification for an ideal information storage an retrieval device —it should be portable, able to functio in any environment, require no power supply and b immediately usable with no warm-up; it should hav high information storage capacity and retain the information indefinitely without degradation or possibilit of accidental erasure; file access should be instant an random and it should be possible to mark up, annotat or make manual corrections to text.

There is no electronic media which meets this specification, nor is there likely to be in the foreseeabl future. On the other hand, there is a non-electric devic which fully meets the specification and has done so fa over 500 years, since the invention of printing, that is of course, the book. □

LIBRARY OF THE FUTURE

S.M. Dhawan*

Presently libraries are passing through an exciting hase of transformation under the impact of inforation technology. The machine readable databases, nline retrieval, microforms, amazing storage capacies of CD-ROM disks, etc. are some of the key ontributions which have had their impact on library rvices. Libraries in UK, USA, etc. are adopting ew technologies for developing information disseminaion systems, and providing services unimaginable, npractical in the past. Although the impact of new chnology is not seen as much in India, the libraries re in for a change and cannot escape its onslaughts. f the trend continues what kind of transformation vill it bring about in the decades ahead. Whether lectronic publishing will replace the book, whether achine readable databases will replace abstracting ervices, whether libraries would still exist as wareouses or become active information centres, or what hanges will new technology bring about in users' nformation seeking behaviour. These and many nore such questions are boggling the professionals, lanners, and thinkers in the field.

In order to visualise the future of the library let us irst look into the applications of information technology, viz., computers, telecommunications, micrographics, and reprographics to the library field.

Online Services

Online information retrieval systems, which first came into existence around 1970 with the introduction of RECON (Remote Control) system by NASA (National Aerospace Scientific Agency) in USA, demonstrate the tremendous potential computers hold for libraries. Retrieval through computerised databases, the counterparts of abstracting and indexing services, had proved so useful that within a span of 10 years the number of databases rose to 400 and of online service including RECON to 59. By 1987 the total number of databases is estimated at 3369 and of online services to 528. Online database industry owes this fast growth to advantages inherent to online retrieval systems. They are tremendously fast. Computers have the capacity to search relevant information from a large store of bibliographic data in seconds. They eliminate physical handling of bulky volumes of printed abstracting and indexing services and also eliminate the labour of personally visiting the library many times. A computer search is more comprehensive and accurate. Computers provide more access points than the corresponding abstracting services in print format. The retrieval software provide boolean logic facility which is unique to computer systems and unimaginable in a manual search approach. It is useful in improving precision and recall in information retrieval. Online services allow users to retrieve information from remote terminals however far they may be located from the central processor. The printouts are neatly produced according to desired format without errors which normally occur in reproducing references manually. It is a lot cheaper to obtain information online services than assembling libraries from a scratch.

Networks

Advances in telecommunications have opened up entirely new vistas in information dissemination. The mix of satellite and computer technologies have produced communication networks which have made long distance communication, across countries, a reality. The most commonly used networks are ESANET, EURONET, TYMENET, and TELENET. There are still many more. It is through such networks that communication link is established between online vendors such as DIALOG, BRS, ESA/IRS and the remote terminals located across different countries. Broadcast transmission has added yet another dimension to information dissemination by introducing teletext services whereby text and graphics stored in a computer database are displayed on television screen. The information is broadcast on television channels. But it is only one-way communication intended for wide public use, carrying information of broad public interest. Its typical examples are Teletext (India), Ceefax (UK), Oracle (UK). Using telephone lines

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interactive information service, called videotax, has also been introduced successfully. Like teletext, videotex also shares a common database but it is much wider in scope and volume. A user gets connected to the computer database on his telephone line. Unlike teletext he can call any page on his television screen. A typical example of videotex is Prestel (UK). It contains vast amount of information on topics ranging from business interests, tourism, travel, weather, governmental information to recipies. Prestel also has a 'Gateway' system which puts a user in touch with external databases using its Prestel terminal.

Electronic Publishing

The information technology has also affected the publishing industry. The publishers have started using computer-based-text processors for editing and producing camera-ready copies in order to bring about efficiency and quality in their productivity. But these developments pertain to paper based publishing industry in which paper is the prime medium of message. However information technology has provided an alternative to printing the text. It is now held as computerised data and distributed as electronic mail. Would-be-user views the text on a VDU and takes out a printout, if necessary, on a local printing device attached to the VDU. Input to, and output from an electronic mail can be also from word processor or facsimile machine. However the transmission of electronic mail requires a telecommunication network. Videotex is also a form of electronic publishing because it allows a user to retrieve information from 'electronic reference book' which otherwise is known as computerised database. Even the databases such as INSPEC, NTIS, COMPENDEX, CA SEARCH are considered as the electronic abstracting journals of Science Abstracts, GRA & I, Engineering Index, Chemical Abstracts respectively. Instead of reading a page here the user retrieves a particular reference using the retrieval software.

Microforms

In addition to micropublishing media (the combination of computer, telecommunication and display technologies) progress is being made in the use of two other media for publishing as well as information storage : microforms, and video tapes and discs. Microforms offer a convenient method of storage, retrieval, and display of images recorded on microfilm or microfiche. A 6" x 4" microfiche card can store 60 to 13000 images depending upon the reduction ratio deployed. They provide the much needed answe for storage problem. Video tape and video disc ar also compact storage media. A vedio disc is such compact storage medium that two copies of the entir Encyclopedia Brittanica (44-million-word text) can b stored on one $5\frac{1}{4}$" disc. It offers a totally ne capability for users of small personal computers t have personal ownership, direct access, and contr of massive databases.

Document Delivery

Information technology has been applied to docu ment delivery. Documents are distributed either a electrically coded images, as computer print-outs, or a computer produced microfilm. The distribution o documents on paper is aided by high quality, fast xero machines. The electronic methods use telex, telete facsimile transmission.

Library of Tomorrow

It may be observed that information technolog offers new ways to store information compactly (exam ples are magnetic storage, microforms, video discs new facilities for rapid transmission over long distance (examples are TYMNET, TELENET); and new capa cities for manipulation of data on computers. Declin ing costs of computer hardwares and proliferation i softwares are increasingly making computer techno logy within the reach of small libraries. Comparin with the past we find that libraries are now bette equipped to organise, manage information systems, t overcome storage problems, geographical and languag barriers to communication, problems of informatio scatter, multidisciplinary nature of information, infor mation explosion and information overload. Obviousl information technology has contributed a great deal t libraries. One may also conclude that library develop ment is linked to developments in industry, and librar future will therefore depend upon new strides comin forth in information technology.

Basically transformations in library functioning ar anticipated in following areas :

—media of message communication ;

—technical information processing ;

—information dissemination ;

—compact storage devics ;

—new management approaches such as organisin library systems, information dissemination sys tems, coordination and cooperation in sharin resources ;

—faster document delivery systems;
—new focus in library education;
—new library building designs;
—new user approaches to seeking using information;
—new preservation activities.

Lancaster had predicted "we are already close to the day in which great science library could exist in a space less than 10 feet square". Dr. Raj Reddy in his convocation address at IIT Bombay visualised the possibility' of an 'electronic library' where it would be possible for anyone, anywhere in the world, to reach and read any document at a cost less than a cup of coffee. Does that mean that the book in print format will disappear ? Deniel J. Boorstin, Librarian, Library of Congress discussed this issue in his report 'Books in Our Future'. Examining the new trends he concluded that "technology is not a threat to the book" but cautioned that "we must enlist new technologies with cautious enthusiasm". Continuing further he warned that it would be fatal to take, extract, remove book from our lives. But luckily it is impossible because of enormous investments which libraries, institutions, and individuals have made in books. The basic characteristics of books offer even more compelling reasons to expect the book to remain a "fertile resource" in the decades ahead. The convenience of book, its independence of outside power sources, its unique individualism, its mobility, and exportability are not likely to be replaced. If electronic publishing and electronic mail systems have threatened the existence of book in print format, computerised databases have threatened the existence of secondary journals. A study conducted for the International Council of Science Unions—Abstracting Board (ICSU/AB) in this regard concluded that online services have so far had negligible effect on sales of print products but there is a great uncertainty about the possible impact in next five to ten years. National Federation of Abstracting & Indexing services (NFAIS) was equally concerned about the future of abstracting services. It reported in its study a decline in the subscriptions of printed products of abstracting services, but observed that this decline is not due solely and primarily to the availability of parallel online databases but to many economic factors. It points out that print and online services have independent markets and there is no couse-effect relationship between the two as it normally appears to be. One may conclude that printed products of secondary journals would have a place in future. Even going by the past experience one may also draw the same conclusion because new technologies have generally served to facilitate our life, change our life style, but they hardly replaced the existing ones. For example microfilm did not replace printing; telephone and telegraph did not replace personal communication; typewriter did not eliminate handwriting; the railway, the car, the aeroplane did not supersede the human technology of moving around.

A new style of library functioning is therefore percieved. Inhouse library functions and procedures will be performed on computers; the card catalogues replaced by database; more retrieval from online services; greater emphasis on coordination and cooperation between libraries; growth in conceptual and communication networks; greater use of library resources; greater capacities for meeting user demands; greater clientele; better, effective and efficient services. Library collection would be a mix of printed products, video products, computer files, and microform products; greater emphasis on acquiring, using, sharing, storing documents on microfilms, videoforms. Library education would have revised curriculum, more emphasis on new technologies, new skills. Above all, the profession would gain respect, recognition, and due place in society. Emphasis in professional duties and responsibilities would shift to online searching; assisting users in the exploitation of information resources; more of document delivery; developing databases for local materials; selecting and indexing portions of literature from a highly specific point of view; improving intellectual accessibility of information resources; assisting, developing, promoting conceptual networks for resource sharing; advising on databases, indexing policies, procedures, vocabularies, searching strategies, etc. Computerised databases would become useful tools for research in bibliometrics, scientometrics, literature analysis.

In addition to printed products, video products, microform products, the library of tomorrow would possess equipment and devices such as computers, online terminals, teletex machines, fax machines, video players and display systems, microfilm reader-printers, photocopiers. It would command interactive communication facilities for transmission of data, text, graphics.

In a nutshell, new technologies will add on new facilities, and the existing ones would also continue. It is the user who will decide which facilities would flourish more than the others.

The library of tomorrow would become an information center in true sense and its guiding principle would be "information (and not the book) is for use". ☐

BIRLA INSTITUTE OF TECHNOLOGY

MESRA : RANCHI

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M.C.A. (3-Yr. Full-time & 4½ -Yr. Part-time)
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22½% seats are reserved for SC/ST candidates.

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Application forms can be obtained by post on pre-payment of Rs. 25/- only by crossed Postal Order, payable to the Registrar, Birla Institute of Technology, Mesra, Ranchi. The request should accompany a self-addressed envelope of size 26 x 12 cm. affixed with postage stamps of Rs. 1.80 paise, clearly mentioning the form required i.e. MBA or MCA—as the case may be.

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B.I.T., Mesra, Ranchi-835215
Dated : January 19, 1988

J.B. Saksena
REGISTRAR & OSD

LIBRARY OF THE FUTURE

A POINT OF VIEW

Sewa Singh*

Introduction

To try to make prediction is quite an unrewarding activity, hence waste of time, but at the same time, it is difficult to resist the temptation too. Having accepted the invitation to speculate on the appearance of library of the future, an attempt is made in the following paragraphs to peep into the years to come, though fully aware that the likelihood of its being wrong may be greater. This is because we base our prognostications on the past, which is otherwise considered to be prologue to future, but past itself being imperfect and incomplete not much of the future activities can be based upon past.

Impact of Technology on Libraries

It is an acknowledged fact that the new technology has already had its impact, *inter-alia*, on libraries in the western world. They are becoming more and more information-conscious society where information is regarded as a powerful resource.

As a result of extensive computer application in almost every human endeavour, the American librarians visualise 'library-in-a-desk' and the 'paperless information system'. According to Taylor, the time is not far off when, with further technological developments, the traditional concept of the library will 'wither away, their historic duties done'. Now these are very bold predictions. One might immediately conclude that by the turn of the century in the year 2000 the libraries and librarians will be completely redundant. Lancaster, however, believes that this will be possible because online terminals are increasingly being used in the libraries. The users are also, particularly in the west, buying their own terminals and they will not have to come to the library of tomorrow physically. He feels that the library may be by-passed as an institution and may remain only as archive of the printed records of the past.

Many libraries in the western world have already introduced computers and automated some of their house-keeping jobs such as cataloguing, serials, circulation, acquisitions, etc.; some are in the process of automating these operations : while many are taking into account the socio-economic considerations and feel that incentive for change must come from the users. Nevertheless, there is no denying the fact that they have gone a long way in this direction.

They have already produced substitutes of the conventional book, that is, new form of documents such as microfilm, microcard, microfiche, etc. These collectively are known as microform publications.

The computer and the other like-machines have relieved the librarians of the routine jobs like preparation of the order letter, issuing reminder, issuing chaser, etc. which consume lot of time when prepared manually. The computers have obviously saved that much time which could well be utilised for intellectual jobs.

Thus the tools of the new technology such as word processors, mini and micro-computers, very large scale computers, have displayed great potentialities in fast storage and retrieval of information. These have revolutionised the concept of storage of information during the last 20 years or so and are proving a boon to the librarians in reducing the pressure of space which has been a major problem. This is, however, necessitated by the changing information scenario where the users need information quickly for immediate consumption.

Another major impact of the new technology has been in the area of information transfer. Here, communication technology has great potentialities and it has achieved impressive results in recent years. Further, satellites can also be used for the fast transfer of information from one end to the other. Many computer-based document delivery systems have also been developed for quick supply. The online bibliographic databases have further enhanced the possibilities of quick and easy access to the documents. Through online searches the concept of universal resource sharing has become a reality. The libraries now need not acquire everything, they can rather, through the

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**Reader & Head, Department of Library and Information Science, Guru Nanak Dev University, Amritsar.*

computer network, depend upon the resources of other libraries.

Similarly, there are non-interactive systems through which information could be transferred to the VDU or the television screen.

Meanwhile, electronic databases have also been developed all over the world. So much so that some databases have also been developed especially for libraries which can either be searched by the librarian or the user. We can therefore agree with Lewis that 'librarianship of the databases is coming'.

Another major development of the new technology is the 'electronic journal' and other 'electronic publications'. The printing industry is already adapting to changing technology. By making use of microfiche synoptic journal publishing is becoming popular which gives only synopsis or extended abstracts of scientific articles. Microform publications have become commonplace. In future, however, authors, particularly in S & T, can send their text directly through their PC or the terminal to the publisher; and time will not be far off when electronic dissemination of information could be made possible. The Third Wave of Alvin Toffler thus begins a truly new era—the age of the de-massified media as described above. So both generation and dissemination of information electronically will usher in the 'paperless information system' in the society of tomorrow.

Changing Face of the Libraries

As a result of the application and transfer of new technology to the libraries, there will be a total face-lifting. The computer and other technology is not being applied as an end but as a useful means to provide more efficient and effective services and enhance the credibility of libraries among the users. In the years to come there is likely to be a more demanding and much more knowledgeable body of users. They would be more information-conscious. The computer will be used not as panacea, but as a tool for quick retrieval and supply of information not only from the sources of one's own library, but also from a neighbouring library. Here, computer networking will come to the aid of librarian as well as user. He can even enter into a dialogue through his terminal with the computerised information system of the library and ask for any information he is interested in to be displayed on the screen of his terminal.

The library of the future will have in its store talking books, sound recordings, video cassettes, films, floppy discs, microfiche, microcards, biochips, etc. The catalogue of these libraries might be stored on optical disc. The librarians of tomorrow would provide information on how to use collections by tape recordings and voice synthesisers. The stacks will not be manned by the attendants, rather by Robots who would collect and reshelve materials on the stacks. Robots might also be put in the circulation section for issue and return of the documents. They might even serve as janitors and control the entry and exit points.

These would change the face of the library of the future completely as it would be transformed into an electronic library. In such a library the users might not be received with the mysterious 'Mona Lisa' smile: they would instead feel the cold of the machines all around.

Library Scene in India

During the last 40 years the total population of academic, public, and scientific and technical libraries has increased rapidly. There are about 160 university libraries, about 5600 college libraries, hundreds of public libraries, and the number of scientific and technical libraries is also reasonably good. They are also following modern library techniques in order to give better library services to their clients.

The Indian librarians have also started to catch up with the new technologies. The use of computers and other electronic gadgets in some scientific and technical libraries is being attempted. Such organisations as BHEL, INSDOC, BARC, DRTC, NAL, SENDOC, NISSAT, SAIL, TISCO, etc. are making use of computer technology. Some of them are also collaborating with international organisations for creating their own databases.

The reprographic technology has already made a big impact in information transfer and document delivery system. Most of the S & T libraries and university libraries possess reprographic equipments and supply photocopies of any document to the users.

Many S & T libraries have gone a long way from the traditional services to the latest services in the form of computerised bibliographic services like CAS, SDI, etc. Some of these libraries have been automated a couple of their house-keeping jobs like circulation control, serials control, acquisition, production of current awareness, services etc.

INDONET is already there and the National Information Centre is to develop ASIANET soon. The otentialities of INSAT-IB are also being planned to e reaped for improving the computer networking.

imitations

There are some obvious limitations in spite of the icture as portrayed above. These are : (i) insufficient nanpower to handle the new situation and new nvironment in the libraries. Library and Information Science education in India though changing, is not upto he mark regarding the imparting of knowledge about iew information storage and retrieval techniques; ii) lack of computer culture, and even lack of library ulture. Without developing satisfactory library ulture, a computer culture can not be evolved; (iii) we also have financial constraints. There are costs of nstallation, providing terminals and peripherals, cablng, air-conditioning, maintenance, materials, and so on.

But this is not going to stay for ever. In future times, skilled manpower will be made available. Library culture and computer culture can also be created and developed so as to make the library a catalyst of social and technological change. We have already borrowed and adopted such American cultural symbols like the jeans, bubblegum, discotheque, rock 'n roll music, fast food, aerobics, etc. This indicates that no matter how the traditionalists try, there is no stopping the tidal wave of this kind of western culture.

Conclusion

Indian librarians are also not averse to the change and the impact of computer technology, etc on libraries. The fact that they are thinking and talking of new technology indicates some change in attitudes. They really want to equip their libraries with modern equipments, the boon of new technologies. And quite recently, the Indian Library Association for its 33rd All India Library Conference had fixed "Modernisation in Libraries" as the theme for the Seminar, which amply demonstrates the need of the hour. As we prepare ourselves to be ushered into the new century we need to give new shape, new look to the services in the libraries of the future in the light of the techniques heralded by advances in new technology. ☐

UNIVERSITY OF DELHI

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2.	Politics and Prejudice	Sh. O.P. Bakshi	Rs. 45.00
3.	Surat and its Trade in the Second Half of the 17th Century	Dr. O.P. Singh	Rs. 50.00
4.	Social Conditions in 18th Century : Northern India	Dr. Pushpa Suri	Rs. 58.00
5.	Self-Determination from Bifra to Bangladesh	Dr. J.N. Saxena	Rs. 25.00
6.	Some Contemporary Meta-Ethical Theories	Dr. Ved Prakash Varma	Rs. 45.00
7.	Control Over Public Corporations in India	Dr. Ramesh Chandra	Rs. 90.00
8.	Patriotic Songs on Bengali Literature	Dr. Gita Chattopadhyay	Rs. 65.00
9.	Export Marketing on India's New Manufactures	Dr. Sri Ram Khanna	Rs. 240.00
10.	Shah Abdul Latif and His Times	Dr. S.M. Jhangiani	Rs. 140.00
11.	Concept of Welfare State	Dr. M.M. Shankhdhar	Rs. 60.00
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This project is conceived to evolve in phases. In the first phase six specialities are being developed : Neuro-sciences, Cardiac-sciences, Renal-sciences, Gastroenterology, Endocrinology, Genetics and Immunology. These six specialities would start functioning by March 1988, with an envisaged 300 beded hospital by the year end. The capacity of the hospital would expand to 600 beds by the year 1990 and to 1800 beds by the end of the third phase.

Each speciality is being developed as a comprehensive centre combining medical, surgical and basic sciences disciplines. In addition departments of Pathology, Microbiology, Radio-diagnosis, Nuclear Medicine, Radiotherapy and Anaesthesiology are developed to provide necessary support to all the specialities. The main hospital and ancillary services are being equipped with the latest and modern investigative facilities. Clinical, experimental and basic research will be an integral part of each department.

The Institute will provide post-doctoral training to medical and non-medical doctors. In case of medical doctors the training will lead to the degree of DM or McH in respective areas. Besides, the Institute will enrol students for Ph.D. programmes and also provide training facilities in nursing and medical technology in speciality areas.

The guiding force behind the spirit of the Institute is the moto that : 'Research enhances vitality of teaching, teaching lifts the standards of service and service opens new avenues of investigation'.

LIBRARY OF THE FUTURE

D.R. Kalia*

One may wonder whether techonological development would affect the resources and services of the Library of the Future. In so far as the philosophical *raison d'etre* of the library as a social organism is concerned, no change is likely to occur. A library shall for all times to come continue to have its main objective of making the sources of knowledge available to the user for his education, information, recreation, aesthetic appreciation and research.

No technological development in the field of electronics and satellite communication can supplant the virtues of a book. The so called Electronic Book shall never be able to replace the book, primarily because of the convenience of its use. The book can be easily carried and read anywhere, any time, without any aid. An electronic book which has not yet been marketed, will have a capsule of the size of corn which may contain upto 500 pages of the text of a book and will be activated on a portable Reader. The text will be read on the screen of the Reader. For the use of the electronic book, the light will have to be subdued during the day when there is bright sunshine. Whether such a book could be conveniently read in an aeroplane, a train or a bus is yet to be experimented with. The video-cassette projected on a TV screen is no substitute for a book either, because of its immobility.

It might astonish some to know that widespread use of radio, cinema, TV and video-cassettes have in no way reduced the incidence of use of libraries. They have no doubt encroached upon the time of the student for study at home. However, the first phase of the craze for TV and video-cassettes seems to be over, as much less time is being spent on this source of entertainment, both by children and adults. The VCRs are being sparingly used in homes. Sometimes they are not used for weeks together and those who possess them regret having bought them. A retired person whose vision and hearing are not impaired may be viewing TV or video-cassettes for long hours. But this is not of much consequence as they were spending only a part of their leisure time on reading and that has not ceased.

The paperless library envisioned by some is nothing but a flick of imagination. Convenience of use of a book is going to prevail for all times to come. A synthetic material may one day be used in place of paper but book is going to retain its present physical form. This is what commonsense would suggest.

Illusions of Computerisation

There is a widespread belief that computerisation of library operations is a panacea for all the ills afflicting the libraries. No. computer has yet been invented and equipped with imagination. It has only a memory. What distinguishes the Hemo Sapiens (Human beings) from other species is their intellectual curiosity, congnitive faculty and their ability to communicate through articulate languages. These capabilities of a human being cannot be taken over by any other species or a man made machine. Computer can do what it is instructed to do but instructions are the product of human mind. The computer only carries them out. The errors that one can commit manually, are also committed while putting in the data and it has to be counter-checked by a human being even after the computer has detected and rectified the errors. Computer is only a time saving device with greater accuracy. It certainly adds to efficiency but not in every situation.

The components of a library are physical plant (building, furniture and equipment) and reading material. Library staff is a physical link between the reading material and the user. Library management is meant to optimise the utilisation of human, material and financial resources possessed by a library. A computer can certainly help in automating the procedures involved in book selection, ordering, cataloguing, serial control, circulation and recovery of overdue books. In addition, it can generate subject bibliographies, documentation lists and retrieval of stored information either online or through a printout or both.

No computer can exercise judgement in selecting books, nor can it find out the subject of a book. This is to be done by the library staff. If the profile of a reader and his needs are fed into a computer, it can only match the material with the needs. But it can exercise no judgement in the choice of titles. The

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Editor, CLIS Observer and Director, HKM State Library, Government of Orissa, Bhubaneswar-751001.

matching is done by the computer mechanically either through the keyword or the descriptor or the class number. Whatever material is available will be listed or displayed on the terminal. The choice will still be exercised by the reader himself as to what is relevant to his needs.

All catalogue entries are to be made by the librarian according to the cataloguing rules through the terminal. Cataloguing rules cannot be put into the computer in the form of instructions as it cannot exercise judgement in the application of the rules.

The librarians are taking as much time to classify and catalogue a book in computerised processing as they did while doing them manually. But once the Main Entry is fed into the computer it can automatically generate further entries by author, title and subject. This is where a tremendous amount of time and labour of the library staff is saved.

I have myself been fiddling with computers since 1968. Once we got the computer facility, we discovered that most of the cataloguing entries were substandard and each book had to be recatalogued and until that was done manually, we could not make use of the computer facility. It was also discovered that many Class Numbers had been wrongly assigned and if there were five copies of a book, each had been placed under a different Class Number. Rectifying the class numbers of a large collection was a herculean task in which the computer was of no help. Yet another problem was to match the class number with the descriptors and prepare class index entries. Though the computer could do it but very detailed study had to be made. The books were all the time on the move and to locate them amounted to weighing the frogs. Many books had been stolen or sent up for binding or were overdue or withdrawn from circulation. It was impossible in an open access system to locate each and every book on record for rectification and rewriting of booktags.

After putting in all the date in computer about books found missing and taken as stolen, books sent up for binding, books withdrawals from circulation and books lent out, we could still not find a large number of books, because the readers had hidden them in different places and there was always a time lag between the reader hiding it and our locating it through shelf rectification.

Identifying, whether a particular book is available in the library, with the help of a computer is one part of the job, but how to make it available to the reade is another. The efficiency of a library is judged by reader by the time taken in making the book availabl to him and not by simply identifying it through th computerised catalogue. Computer is of no help i locating a book physically.

In the case of index entries of articles fed into th computer, so long as those pertained to library holdings the article in demand could be located. In case we did not have it, it took too long a time, to get i from other sources. This exasperated the reader. W also discovered that comprehensive subject bibliographies did not satisfy the reader, because a large number of the titles included in them were not availabl in our library and we failed to borrow them fron other libraries as inter-library lending in India wa not well organised. The readers made a mockery o our preparing subject bibliographies and documentation lists.

We also discovered that after having compute facility, we could not reduce our staff and the amoun of money spent on computer, its maintenance anc operation was extra and it was much more than wha we had anticipated. When we had our own computer the problem was in finding and retaining a good programmer, who had become a scarce commodity.

In case, we depended upon the services of a centralised computer facility, most of the time its services were not available or it was out of order or electricity supply had failed. It took too long to train the library staff in computerisation and once they acquired the skill, they deserted us for better opportunities.

My purpose in pointing out all these difficulties is not to decry the use of computers but only to caution the overenthusiasts. They should go in for computerisation and bibliographic databases only after they have set their house in order. There is light but only at the end of the tunnel. They should first rectify the class and catalogue entries before going in for computerisation. To start with only large libraries should opt for it and the smaller ones should have a centralised computer facility. It is of no use computerising circulation system in a library where number of books lent out per day is very small. Similarly, computerisation of book selection and acquisition is of no use in a library with a small annual intake of new books. It is better to share a common computer facility for these purposes, if one exists.

If any evaluative study is made of all the libraries

India which have gone in for computerisation, one uld have a mixed reaction about the virtues of mputerisation of library operations. Writing arti-es on computerisation and delivering speeches is uch easier than making a success of computerisation a library. There are many slips between the cup d the lip than what a novice would think of. With-t pre-planning one might burn his fingers and may en incur displeasure of the user.

The author and the publisher are the producers of ooks; the library is the preserver and promoter; and e user is the consumer of the end product. These ree constitute the trinity of knowledge industry. the trinity library is the Kingpin as it provides a ide and stable market for books. The bookseller is art of the marketing process.

The library of the future is not going to be hurt s much by technological development as by quality f writing, book production and its pricing. Ninety er cent of the hard cover are purchased by libraries, ecause the books are so highly priced these days that nly a few individuals can afford to buy them. Library udgets are not worked out on the basis of the number f volumes to be added in a year. To absorb the infla-ion, the number of volumes to be acquired in a year hould be multiplied by the current average price, and that would determine the book-budget of the library. But the actual practice is to make an adhoc provision, without taking into account, the number of volumes to be acquired and their cost. Consequently the libraries are buying fewer books, whereas the demand for them is on the increase with the spread of education, expansion of knowledge and emergence of new disciplines. Most of the libraries are failing to keep their runs of back files up-to-date for paucity of funds.

In fact, the real danger lies in the phenomenal increase in the cost of library service. The price of every element (building, furniture, equipment, books, journals and staff salaries) has spiralled so high that even developed countries are finding it difficult to maintain their libraries at optimal level of adequacy. The developing countries are in a much worse situation.

Conclusion

The library of the future is not going to be basically very different from what it is today. This makes its position secure. It may acquire new dimensions with improvements in printing technology, printing material and automation. New technological developments will promote the use of printed word but not supplant it. ☐

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BOOK FAIRS AND LIBRARIES

N.B. Inamdar*

Books and Modern Media

Books are the records of civilization. Till the ecent development of mechanical means of communication, the written word has been the single most important factor in the intellectual development of mankind. In an age when new electronic channels of communication are taking hold, the question being heard is : Will the book survive ? The television set and the computer epitomize the electronic challenge to books and publishers and libraries.

But in spite of the rapid strides made by the electronic media, books remain an essential input for individual fulfilment and national devèlopment. The increase in the world output of books, not withstanding modern technologies, provides testimony of the fact that all these fascinating machines are complementary to, and not substitute for, book and the printed word. The essence of book, unlike other forms of communication, is that it is a personal and cooperative experience between the reader and any author from any period of recorded history.

Undoubtedly, a modern library is expected to provide access to records, tapes, films, lectures, concerts and online computer searches, but books are their most dominant and visible offering. For many years, books will continue to be published by tens of thousands, bought by hundreds of millions. They will remain highly familiar objects and popular media of information and knowledge in libraries.

However, libraries face many problems regarding acquisition and availability of books. It is in this context that the role of 'Book Exhibitions' and 'Book Fairs' becomes important for libraries.

Libraries & Book Development

The year 1972 was declared by Unesco as the International Book Year. An important document that was published during the period was 'Charter of the Book'. This charter was the outcome of intense deliberations by an International Committee comprising booksellers, authors, composers, documentalists, librarians, translators and publishers.

The ten articles of this charter cover all aspects of books and their relevance to the quality of life. According to articles 7 and 8 the libraries are national resources for the transfer of information and knowledge for the employment of wisdom and beauty. They occupy the central position in the distribution of books, the promotion of reading habits, the providing of lifelong education, and economic, social and cultural progress of the communities. The charter stresses the importance of library services by establishing a network of libraries. It specially highlights the need for rural libraries in developing countries. It is recognized throughout the world that the libraries are effective instruments for human resource development.

During the 40 years of India's independence, not adequate attention was paid to development of libraries. Inspite of the fact that the Library Advisory Committee appointed by the Government of India in 1957 and subsequently constituting of the Working Group on libraries by the Planning Commission in 1964 and valuable suggestions and recommendations made by them, there are only 5 States in India which have network of public libraries based on library legislations.

Similarly ambitious schemes of educational expansion are often thwarted in the absence of a corresponding growth of libraries and book industry. Our new educational policy lays thrust on universalization of elementary education, diversified vocationalization, continuing education and functional literacy, open universities, correspondence courses, etc. These objectives could be realized only when adequate support and due attention is paid to development of libraries and books.

The National Adult Education Programme introduced by the Government of India in 1978 with a huge outlay of Rs. 600 crores, does not earmark any amount for libraries. Similarly library services in schools and colleges at present are meagre and rudimentary. Proper expansion and improvement of these services will help in raising the quality of education at comparatively small cost. There need be a planned and well organized relationship of the library systems with producers and distributors of books. It is the duty of the State and Central governments to promote such linkages.

University Librarian, Osmania University, Hyderabad-500 007.

Despite the handicaps and constraints described above, Indian publishing since the independence has come a long way. India today publishes 20,000 titles a year in English and 18 Indian Languages covering a variety of subjects. It ranks seventh in the world of International publishing in terms of titles and third in the production of titles in English language. 80% of these books are purchased by libraries. Therefore, libraries' concern for availability of quality and relevant publications is obvious.

Extension Services in Libraries

Libraries not only collect books and other graphic records, but devise and plan various activities that help in promotion and use of books by readers and inculcate reading habits in them.

The introduction of extension work in libraries is one such activity. This work aims at reaching group of people, who might be otherwise unaware of the library and its services. The extension activities differ from library to library. They generally include 1. Lectures and Film Shows, 2. Reading circles, 3. Discussion groups, 4. Story hours for children, 5. Play and Poetry reading groups, 6. Seminars, and 7. Book exhibitions.

Book Exhibitions

The new books are brought to the notice of library members by displaying book jackets and arranging book exhibitions under the sign 'New Arrivals'. Also catchy captions like 'Book of the Day' 'Book of the Week' 'Book of the Month' are used for books' displays. These devices certainly help in promotion of book reading.

Special and topical exhibitions are organized coinciding with important national and international events, like UN Day, Human Rights Day, International Literacy Day, World Health Day, etc. Similarly on the occasion of Republic Day (January 26) or Independence Day (August 15) book exhibitions are arranged taking out related books from the racks and arranging them in an attractive manner. All such book exhibitions, provide readers visual impression and promote the use of materials lying on the racks unused. These type of book exhibitions help in implementing the following laws of Library Science, vigorously. (1) Books are for use, (2) Every reader his/her book, (3) Every book its reader, and (4) Save the time of the Reader.

Libraries also ask leading publishers/booksellers to arrange book exhibitions in libraries and thus hel students, faculty, and researchers in knowing abou new and scholarly publications. These exhibition also imbue the book sense among the users c libraries.

Libraries believe in the slogan "Catch Ther Young" and organize, particularly, in public an school libraries, display of childrens' books.

Book Fairs are nothing but extension of the boo exhibitions and librarians and libraries are beneficiaries of such fairs to a great extent.

Book Fairs and Libraries

The idea of Book Fair has its genesis in Leipzi Fair which was introduced in the early part of th 19th century. It was originally annual gathering o booksellers, publishers and printers to settle thei accounts. This practice continued until the Worl War II. In the year 1949, Frankfurt Book Fair wa held for the first time. This Fair is considered as a successor to Leipzig. It is very important Book Fai at the international level and is organised every year It gave impetus to the movement of book fairs. Now book fairs are held at different levels; international regional, national, city, etc.

As the publications kept growing, the idea of book fairs got popular. Publishers all over the world were interested in finding outlet for their publications. The extraordinary growth of the book fairs during the past 25 years can be attributed to the internationalization of publishing industry. There are now about a dozen countries with Book Fairs as annual events and another dozen which have experimented with them. Every year several new ventures are made in this direction. The growth of book fair as an institution in international publishing shows no signs of slowing down.

Book Fairs are sponsored or supported by organisations, institutions, associations, etc. The significance of such fairs lies in promotion of literature and culture of a nation as well as fostering better understanding among the people and countries of the world. Books are most vital food for the human mind and human spirit. They strive constantly shaping and moulding the minds of millions and hold humanity together and bring mankind closer in search of its own identity. Book Fairs create and promote a world society of bookminded people; the objective and mission libraries strive at.

Important International Book Fairs

The following Book Fairs have achieved great importance in recent years. A brief description of each of them is as follows :

Frankfurt Book Fair

It is attended by publishers, authors, literary agents, librarians, booksellers and distributors from all continents. It is the biggest book show in the world. The 1986 Fair had its theme "India—change and continuity" and a total number of 6000 books and journals in as many as 14 languages of India were displayed by Indian publishers. An equal number of books published on and about India in other countries were also exhibited. About 7000 publishers/booksellers took part in 1986 Fair. Frankfurt Fair offers best opportunity to the men in book trade for negotiating listing rights, translation rights and co-publishing rights.

Association for Asian Studies

This is an important professional society. It serves the needs of scholars of Asian studies in different parts of the United States. During their annual meetings book fairs are arranged regularly.

London Book Fair

This Fair was started in the year 1971 and has become one of the major book fairs in the world. Books in English covering various subjects are exhibited. It provides a good forum for establishing useful commercial contacts for the participant publishers and booksellers from all parts of the world.

Moscow Book Fair

This is one of the biggest Book Fairs held biannually. Major publishers from all over the world display books in different languages.

Beijing Book Fair

A considerable number of foreign publishers participate in this Fair. This Fair enables Chinese readers to have a better understanding of trends in science, technology, economy, education and culture in other countries. During the Fair the Chinese and foreign publishers negotiate co-publishing arrangements to develop scientific, technical and cultural cooperation and strengthen friendship among peoples of the world.

Pesta Buku Malaysia

This Fair is held every year. In addition to the publishers and distributors from Malaysia, the foreign publishers participate at this fair through their South East Asia offices located in the region.

Singapore Festival of Books

The renowned publishers and distributors all over the world take part in this annually held book fair.

New Delhi World Book Fair

It started in 1972 as a gift of 'International Book Year' declared by UNESCO. This book fair is held every alternate year. Leading publishers from Pakistan, Bangladesh, Nepal, West Asia, Europe and United States of America participate in this Fair, which provides excellent opportunity to the bookmen to quench their knowledge thirst. The librarians from all over India visit the fair in great numbers and buy books selecting from among thousands and thousands of books displayed. The leading personalities of the publishing world visit this fair. This provides an opportunity to the Indian publishers and book distributors to build contacts and negotiate about different matters relating to book trade and book production.

International fairs are also held regularly in Belgium, France, Argentina, Italy, Switzerland, Poland, United States of America, Zimbabwe, Spain, Yugoslavia, Baghdad, Phillipines and Egypt.

The important role of Book Fairs is that they make possible for book lovers to see under one roof such vast collection of books. The readers are influenced and become bookminded and reap the benefits of reading books. Book Fairs are great catalysts in changing the attitudes of community towards reading; the cause most dear to libraries and librarians.

Book Selection and Book Fairs

In addition to World Book Fair at New Delhi, the fairs are held in India annually at Calcutta, Madras, Bangalore, Bombay and Hyderabad. On all such occasions, the publishers and book distributors bring and display their recent and scholarly books. The wholesalers representing a number of leading publishers throughout the world participate in good numbers and display huge stocks of books. The importance of such book fairs is enhanced by participation of government sponsored autonomous organisations like, National Book Trust, Childrens Book Trust, Sahitya Academy, NCERT, Association of Indian Universities and quite a few research institutions of national importance.

Book selection is the first task of the librarian. The three main factors involved in selection of books are : Books and other library materials, (2) Readers, and (3) Funds available. These factors are ever present irrespective of the type of the library. Their interplay has resulted in a fundamental enunciation by Melvil Dewey, "The best reading for the largest number at the least cost."

As the books multiply to unmanageable proportions, judicial selection becomes very important. Demand by readers, value of materials and the objectives of library will be guiding factors. The selection should be impartial and serve as vehicle to instruct, teach and recreate.

The educational background and experience of author, reputation and reliability of publisher, treatment of the subject matter, style of presentation, accuracy and uptodateness of information and data, and physical features like typographical layout, design, appendices, glossaries and indexes, etc. are some criteria that are applied for evaluation of books before they are selected for the libraries. Publishers' catalogues, national and subject bibliographies and book reviews in journals, no doubt help libraries as selection tools. But the opportunities provided by the book fairs for the selection of required materials are much more advantageous. The variety and the volume of materials available for selection is unparallel.

Acquisition of Books in Libraries

The efficiency of acquisition programme in any library depends on librarian's having intimate knowledge of all agencies relating to book trade; publishers, wholesalers, booksellers and a number of government agencies and autonomous bodies involved in promotion and production of books. It is noticed that library science schools in Indian universities have not paid adequate attention to this very important aspect of librarianship. There is not much interaction between library and publishers/booksellers/associations. The formation of Good Offices Committee at the central level is a positive step in this direction but not adequate to cover all nuances of book acquisition.

There is a tremendous increase in book publishing in India after independence, both by private sector and government agencies. The annual output of book is about 20,000 in all the 15 languages of India including English. But it is seen that proper disseminatio of information about these publications is absent This hampers the rhythm of acquisition schedule. Th librarians always feel lost when they are asked t procure books of specialised nature for which ther are no direct trade channels in India. Ironically sometimes they go in for foreign publications when equall scholarly books of high standard have been produce in India.

Book fairs provide unique opportunity to the librarians to get first hand knowledge about the book trad and thus overcome these shortcomings.

Developing Special Collections

The university and special libraries will be focussin their attention in acquiring books relating to specialised areas like nutrition, medicine, genetics, etc. It i seen that there are very few publishers and bookseller that have paid attention to this aspect of libraries needs. The librarians have to take chances by contacting a number of booksellers, sometimes without an success. There are very few publishers like Wilson an Bowker (US), Whitaker (UK), Elsevier (Europe), an NTIS (US) to whom librarians can look confidentl for acquisition of reference books, books on scienc and technology and technical reports.

A widely represented book fair at international o national level will be a great boon for libraries i building specialised collections.

Books in Indian Languages

This is another area where librarians do not posses adequate knowledge. Out of the 20,000 annual boo production in India, 55% relate to Indian languages The bibliographical control of these publications is no satisfactory. In the bargain the libraries miss goo books produced in Indian languages. Almost all state have taken up programmes of book production in thei respective state languages through Academies an encouraging other scholarly agencies.

A special display of books in Indian languages i organised during the World Book Fair. Also th translations of some of the standard titles in othe Indian languages are exhibited. This is very importan aspect for libraries in as much as the states have adopted the respective state language as a medium of instruction in schools and colleges. These languages ar being used very widely in official matters also.

ildrens Books

All public libraries have children's corners. Besides here are exclusive libraries for children like Bal Bhavan n Hyderabad. There is a great need of having attracive books in all such libraries. Attempts are being nade in India through NBT, CBT, NCERT and some rivate publishers to produce childrens books in nglish and Indian languages. But the total annual utput has not exceeded 500 titles.

Design, contents, style and language of children's ooks needs special attention. The librarians and uthors who are interested in working in this field will e amply benefited by visiting book fairs, where hildrens books from all countries are displayed. cience and technology books for children that are roduced in Russia and displayed during the World Book Fair need special mention. They are quite attracive and inexpensive. Some of these titles could be asily translated by the librarians and authors having ngenuity and imagination.

Book Grants and Book Fairs

It is typical of India that book grants are released owards the end of the financial year. This upsets the rhythm of acquisition of library materials. Added to that the procedure requires that the library should spend the grant before the end of the financial year. The natural result of this is that the librarians do spend the money and procure books but at the cost of quality and relevance. In all such cases World Book Fair held in the month of February could be visited by the librarians and allotted grants used more profitably. They will have ample choice to select the materials from among the great number of books displayed under one roof. Any other book fair held during the month of March will also be helpful in buying useful books within the stipulated time.

Seminars and Workshops

Lectures, seminars, workshops, etc, are the essential part of the book fairs. The librarians should be invited to all such programmes. In fact, it will be of great use and interest if these programmes are jointly organised by library and book trade associations. The exchange of ideas and contacts built during such meetings will be of mutual benefit.

There is an intimate connection between book trade and libraries. Both of them have the common objective of promoting the welfare of the society through medium of books. Book fairs provide a unique opportunity to libraries and people in book trade to have meaningful interaction. □

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Spiralling Prices And Library Budget

V.B. Nanda*

Introduction

Richelieu said that 'finances are the nerves of state', a 'lever of Archimdes', when firmly set gives power to move the world. Given unlimited financial resources and free hand, any library shall endeavour to acquire every book and journal printed anywhere in the world and thus build its collection to formidable proportions. But like the philosopher's stone, such ideal situation does not exist anywhere.

Libraries all over the world suffer from financial famine, which of course, is more severe in the developing countries. With the present financial instability the world over, libraries in the developing countries are the worst hit by the financial famine. On the one hand new educational institutions with libraries as their essential components are being established in large numbers, on the other, the financial resources of the government and funding bodies have dried up or are in process of drying up. In India, whenever any calamity or emergency hits the nation, the axe of economic cut falls upon the educational budget and in that process library finances are the first casualty.

The financial problems faced by the libraries, especially in our country, are manifold. The fast expanding boundaries of knowledge and proliferation in publishing have made it difficult for the libraries to keep pace. The prices of books and subscription rates of journals have been increasing at a very high rate. The financial resources of libraries have been shrinking. Where the budget cut has not been enforced, the rate of increase in the budget which varies from 3 to 5 per cent is not sufficient to keep the present rate of addition of books and maintenance of the current subscription list of journals. With the expanding universe of knowledge and widening horizons of research, the demands upon the libraries have become enormous which they are not able to meet. In India, while the growth of the academic libraries have become stunted, the public libraries are at the verge of turning into stinking pools of books. In this light, we study here the spiralling problem of price rise of books and journals and how best we may counter the same.

Book Production

In spite of proliferation of knowledge, the actual production of books has decreased the world over. After World War II, the faculty and the scientists have been caught in a net called 'publish-or-perish' and there was a boom in publishing. Though today many bright authors do not get published or are waiting in the wings, the book production has developed into a purely professional-profit-oriented-business. Gone are the days when scholars would build their personal libraries by purchasing two penny 'Everyman's Library' or 'World Classics' series and feel proud of their personal collection. Today, even in the U.S.A., any lover of books wanting to build his personal library shall have to wait for a year or two till the publishers consign their unsold stocks to the super markets and general stores for disposal at throw-away prices. Then watchful eyes would collect the books of choice for addition to the personal library.

These stocks of unsold items are also sold to the book trade in the third world countries where these are unscrupulously sold as 'new' at the printed price. In India, this game has been played successfully by the Trade to the disadvantage of the unsuspecting libraries. From this single fact it will be seen that there has been a change in orientation of the publishers after the World War II. Their only aim is to price the books very high and make profit by selling a limited number of copies to the libraries at home and then unload the unsold stocks elsewhere with a 'who cares' attitude.

A reference may also be made to the multi-tier book pricing schedules of foreign publishers, where books called EEE, ELBS and like editions, are priced low for sale in foreign markets. Sometimes there are prices in two different currencies to offer advantage to the trade only. If the publishers cannot make profit in their own countries, how can they survive by reducing the price to half or so in foreign markets ? Most of the time one finds xth edition in economy price only after its subsequent (x+1)th edition has come in the domestic market. This trend has implications for the third world countries which are the only losers in the long run.

Clive Bingley has identified the following two

**Librarian, Jawaharlal Nehru University, New Delhi.*

main reasons about the sharp rise in the book prices during the last two decades : (1) progressive underpricing of books over the long period of time before World War II, and (2) the concurrent decline proportionately in publishers' profits. He further says that it was before the 1950s that the books were under-priced in comparison to the high cost of production and distribution, and this realisation dawned upon the trade only when the book production industry was in the grip of a stock boom. The book publishing industry is a very high-capital-investment industry and cannot afford to keep the stocks of unsold books. Richard Blackwell too, supports the view of Bingley. The result had been that the number of copies published came down with profits going sky high in the 50s. The trend continues till this date. The average price of an ordinary book has gone up hundred times when compared to the price in the year 1939. Tables 1, 2 and 3 shall support this view.

Table 1 : Production

Country	1979	1980	1981	1982	1983	1984
USA	88721	86377	76976	46935	53380	41380
UK	41864	48069	42972	48307	51071	51535
W. Germany	59666	64761	56568	NA	NA	NA
India	11087	13148	11582	10649	NA	NA

Table 1 shows that in the USA, production of books had gone down during 1979 and 1984 period. In the UK, it had gone down during 1979 and 1981, but in 1982 it caught up and in 1984 exceeded the 1979 mark. In Germany it rose in 1980, but declined in 1981. In India, it increased in 1980, but came down in 1981 and subsequently in 1982 the overall trend in book production was downward.

Table 2 : Average Prices of Books in UK
(Cut-off Year 1971-72=100)

Year	Ave. Price in £	Index
1971-72	3.70	100.00
1972-73	3.33	90.00
1973-74	3.33	90.00
1974-75	3.50	92.00
1976	4.99	133.00
1977	5.93	160.00
1979	10.81	292.00
1982	14.29	386.00
1983	13.61	367.00
1984	16.51	445.00

Table 2 shows that average unit price of book i the U.K. taken as 100 in 1971-72 rose to 445 in 198

Table 3 : Average Prices of Books in USA
(Cut-off Year 1966-69=100)

Year	Ave. Price in $	Index
1966-69	8.77	100.00
1971	13.25	151.00
1972	12.99	148.01
1973	12.20	139.01
1974	14.09	160.07
1975	16.19	184.06
1976	17.39	198.03
1977	19.22	219.02
1981	26.63	300.01
1982	30.34	345.00
1983	31.19	350.01
1984	29.81	340.00

Table 3 shows that if the average unit price wa 100 in 1966-69, it touched 340 in 1984.

In case of Indian books the random samplin shows that if the price of a book was Rs. 30 in 197 it is Rs. 200 in 1987. This is about seven time increase in price and has become difficult to absorb b any library.

The Indian Scene

In the Indian context, one would like to refer t the problems faced by the libraries. Mr. Khushwan Singh has said that the only sufferer in the game o book production is the author. His is a subjectiv statement. In fact the libraries are bracketed wit authors as the sufferers. The Indian book trade ha followed, in matter of pricing, the ways of thei brothers abroad. Their concern for quality is totall missing. The eye is only on the libraries. The whol production and the pricing of book is oriented towards its sale to the libraries alone. In this gam the readers, who otherwise would be tempted to purchase books for their personal use, have been totall alienated because of high price of the Indian books Thus if on the one hand many promising authors d not get published, or get cheated if at all published on the other, the libraries' budgets have become insufficient to meet the bill of adequate book purchase.

The Indian book industry has not made any effort which it otherwise should have done morally i.e. t price the books reasonably so that an average citize may have strength enough to purchase. If mor ies of a book at reasonable price are thrown for e in the market, there would be more readers, more es, more educational and intellectual development the society, and more profit for the publishers. is fact has been totally forgotten by the Indian ok Publishing Trade.

The Indian scene is not different from the scenes the U.K. and the U.S.A. from the commercial int of view. We have noticed from Table 1 that e book production, numberwise, has gone down in the three countries. Perhaps in the coming years may see increase in book production in India, but e situation in matter of price vis-a-vis libraries and aders is not likely to change until and unless some vareness in concerned quarters takes place or the vernment come down heavily upon the Book Publi- ing Trade. Of course, the government and the mi-government organizations have been publishing d selling books at a price which in all cases is arly 1/4 of the price otherwise fixed for the same ok by the book trade. The hegemony of the book ade and the red tape in the government departments ive been such that many good government and semi- overnment publications are sometimes not able to ll well and reach the public. For this also, some volutionary changes are required.

But the Indian publisher is held at ransom by the ndian bookseller who is unmindful of the needs of e reading public because the aim is huge profit only. he Indian publishing industry could be counted on ngertips. In some cases the publishers are the book- llers too and enter into barter deals among them- lves. This is not conducive to the book industry. the pricing schedules are not standardized and the ook prices not drastically cut and brought to a asonable level, there will be no support from the ading community. The libraries with their shrinking nancial resources shall soon cease to be the sole ource of support to the book trade.

The very qualily of reading material published in ndia also leads the industry to print fewer copies. his is also one factor for the price of the book to be igh, making it virtually impossible for the average eader to purchase. Another factor is the low capacity f the average Indian reader to purchase a book for is own use. The inflation and the consequent higher ost of living have made the individual's resources imited. High price acts as a disincentive to indivi- lual to purchase books. All these factors have affected general readers, who prefer newspapers and popular magazines to the serious reading of higher intellectual content. Whether it is an academic institution or general public, we need libraries to keep our academic programmes going on and our masses provided with means of self-education. But the book production cannot survive upon the libraries alone. The publishing trade shall therefore have to be economically self-supporting and for this published price shall have io be standardised in a logical way to suit the pockets of the individuals as well as institutions in the interest of both, the trade and the society.

Production of Periodicals

The periodicals form the backbone of research programme in any subject or discipline. They are the primary source of information and are valued the most. The periodicals therefore have preference over books. Proliferation of periodicals has been such that in 1987-88 we have 70,800 periodicals listed in the Ulrichs' International Periodicals Directory against 40,000 listed in the same Directory in 1969-70.

Table 4 : Growth of Periodicals

(Cut-off year 1966-69=100)

Year	No. of Periodicals	Index
1969-70	40,000	100.00
1971-72	60,000	150.00
1977-78	60,000	150.00
1983-84	64,800	162.00
1987-88	70,000	177.00

Table 4 gives a clear picture of rise in periodicals published in the world. As compared to the book production, which has a downward slope, the periodical publications have risen to 177 with 1969-70 figure taken as 100. This increase in number of periodicals shall have to be read in conjunction with increase in their subscription rates.

From Table 5 (on next page) it will be seen that subscription rates of journals have increased by leaps and bounds and have totally upset financial management in the libraries the world over. The annual rate of increase in library budget in India is 3 to 5 per cent which comes to 51 to 85 per cent during 1970 to 1987. But the journals' subscription rates have increased six times during 1970-1987, which even the libraries in the U.S.A., called the Land-of-Libraries, are not able to afford. The publishers argue that increased costs of labour and material have forced them to hike the subscription rates. But Robert L. Houbeck Jr. asks whether the production costs in publishing industry have really gone up by four times faster than the general inflation rates in the U.S. He further cites the U.S. Deptt. of Commerce report on the American magazine industry that the rise in prices of paper and postage had been 'moderate' enough for the publishers of journals to balance the subscription rates with 3 to 4 per cent annual increase. This is a just argument and is in line with budgetary increase of 3 to 5 per cent as admissible in India and elsewhere in the world.]

Table-5
Selected Journal Prices, 1970-1987
(In U.S. Dollars)

Journal (Publisher)	1970	1975	1978	% Increase 70-75	% Increase 75-87
Sciences					
Biochimica et Biophysica Acta (Elsevier)	$495	$1551	$3882	213%	150%
Coordination Chemistry Reviews (Elsevier)	25	136	745	444	448
Inorganica Chimica Acta (Elsevier-Sequoia)	26	235	1918	804	716
International Journal of Theoretical Physics (Plenum)	26	135	395	419	193
Journal of Theoretical Biology (Academic)	80	234	1195	193	411
Humanities & Social Sciences					
Accounting Review (American Accounting Assn.)	9	25	50	178	100
Architectural Review (Architectural Press)	14.40	37.50	85	160	127
Historical Abstracts (ABC-Clio)	151	495	1749	228	253
Journal of Industrial Economics (Black-well)	5	20	75	300	275
Survey of Current Business (U.S. Office of Bus. Econ.)	9	48	48	433	0
U.S. Consumer Price Index	$116.3	$161.2	$338.3*	39%	110%

*Based on 1986 CPI (328.4)+1987 inflation of 3%

Source : J. of Acad. Libnship v. 13(4) : 1987, p. 215

In fact, publishers of both the books and the periodicals have taken the customers i.e. the libraries for granted and have been changing during the last 2½ decades, about as much as the customers would pay. Since the customers have not grudged these payments, the price hike has been a regular phenomenon and has reached the proportion that has become impossible to bear today.

Proposed Remedies

Robert L. Houbeck Jr. has pleaded for aggressive librarianship and advised the publishing trade to absorb the costs and not take the libraries for granted. True, we have paid as far as we could pay. But now we have reached the tether's end. The following measures are therefore proposed for consideration of all concerned :

1. The funding agencies should ensure that the libraries are given adequate funds to maintain the acquisition programmes, namely, regular inflow of books and maintaining current subscription lists of journals at all costs.
2. The academicians, intellectuals, users of the libraries and all book-lovers should acknowledge and support the 'citizen's right' to purchase books at a reasonable price and organize a 'Consumer Movement'. The public opinion thus created shall force the publishing trade to realise the importance of publishing more copies at less price so that they have their rightful profit and the public has access to the printed word. This is the only alternative which is in the interest of all.
3. The resource sharing by the libraries is a very very important topic which has been discussed all over the world. But the results have not been satisfactory. A fresh thought shall have to be given, and ways and means devised. The accounts and audit rules shall have to be relaxed. The Telecommunication Department shall have to permit the online arragements between the libraries and the databases to cross the public roads unhampered. The libraries shall have to wake up to the knocks of the 21st Century and start upon automation at once and assist in creating databases at focal points on regional and national levels. A full volume could be written on this issue. A proposal on this issue from the Haryana Agricultural University has also been pending before the AIU.
4. The rising subscription rates have given another thought, that is, we may draft a national policy and subscribe to the costly abstracting and indexing services on national and regional levels only, feed them in the data bases and permit online access to the user libraries. The city of Delhi need not purchase multiple copies of Biological Abstracts, Chemical Abstracts and the like.
5. An idea which is advanced by the Faculty is that the journals have two-tier pricing system— a higher price for the libraries and a lower

price for the individuals. The faculty members may therefore register a subscription in their individual names but the parent body pays, and the journals when received by the individuals, are passed on to the libraries. This shall affect enormous saving and ease the financial stringency. This shall also make the publishers see the reason.

6. Another remedy is that the libraries having a book and journal budget of Rs. 10 lac and above start Bookshops of their own and force the Trade on their own or through government channels to extend Trade Terms to these Bookshops. The Bookshops then sell books and journals to the libraries and also to the faculty and the students at a 'no profit no loss' basis. Some of the librarians have called this venture as a 'fall from professional ethics'. One should not forget that the question of 'ethics' is equally applicable to the Publishing and Book Trade. The Indian Rupee in the name of 'managed floating' have depreciated considerably. In December 1986 the rates, were 'Rs. 100.00= U.S.$7.6 = U.K.£5.2 = D.M.14.8=Yen 1214', while in December 1987 the rates were 'Rs. 100 = U.S $7.8 = U.K.£4.2=D.M.12.5=Yen 965'. The Rupee vis-a-vis Dollar seems stable. But it has floated down considerably in matter of other currencies. In such circumstances, how are we to stretch our Rupee to purchase or subscribe to adequate number of books or journals ? The Bookshop is one strong answer to this problem. The experiments at the Universities at Pantnagar and Hisar and now at the JNU have shown a marked success of this venture.

7. The publishers of books and journals too have a remedy to the problem of rising costs in their own hands. The annual trend increase in cost of materials and labour has been around 3 to 5 per cent during last about two decades, but the increase in price in case of books and journals is six to seven times. It is obligatory upon the Trade to acknowledge the right of the people to have free access to the printed word. They should therefore rise to the occasion, check the price-rise and help the people read more. This shall obviously and ultimately prove to their advantage.

The old saying, 'it is the speaking wheel that gets the grease while the silent one is thought to be working well' holds good here. The librarians and the libraries have remained silent enough. Now is the time to raise the voice and demand the right of masses to the printed word at reasonable price. □

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ON BOOKS

Baljit S. Grewal*

What we learn from the book of nature, we book o atune the coming generations. A good many oned people, from different times and climes, have essed their views on books, as per their experies, which read as follows :

1. Books are light houses erected in the great sea ime.

—E.P. Whipple

2. Books are those faithful mirrors that reflect to mind, the minds of sages and heroes.

—Gibbon

3. A good book is the best of friend, the same ay and forever.

—Tupper

4. Some books are to be tasted; others to be llowed; and some few to be chewed and digested.

—Bacon

5. Without books, God is silent, justice dormant, ural science at a stand, philosophy lame, letters mb, and all things involved in darkness.

—Bartholini

6. Books are the legacies that a great genius ves to mankind which are delivered down om generation to generation, as presents to the sterity of those who are yet unborn.

—Joseph Addison

7. The past but lives in written words; a thousand es were blank if books had not evoked their ghosts d kept the pale embodied shades to warn us from shless lips.

—Bulwer

8. Books are masters who instruct us without ds or ferules, without words or anger, without bread money. If you approach them, they are not asleep; you seek them, they do not hide; if you blunder ey do not scold; if you are ignorant, they do not ugh at you.

—Richard de Bury

9. The books we read should be chosen with great care, that they may be as an Egyptian king wrote over his library, "The medicines of the soul".

—Paxton Hood

10. There was a time when the world acted on books; now books act on the world.

—Joubert

11. There is no worse robber than a bad book.

—Italian Proverb

12. Bad books are like intoxicating drinks; they furnish neither nourishment, nor medicine—both improperly excite; the one the mind; the other the body. The desire for each increases by being fed—both ruin; one the intellect; the other the health; and together, the soul. The safeguard against each is the same —total abstinence from all that intoxicates either mind or body.

—Tryon Edwards

13. The best of a book is not the thought which it contains but the thought which it suggests; just as the charm of music dwells not in the tones but in the echoes of our hearts.

O.W. Holmes

14. We are liable to be corrupted by books, as by companions.

—Fielding

15. Books are but waste paper unless we spend in action the wisdom we get from thought.

—Bulwer

16. Books, like proverbs, receive their chief value from the stamp and esteem of ages through which they have passed.

—Sir W. Temple

17. A good book is the precious life-blood of a master-spirit embalmed and treasured up on purpose for a life beyond.

—Milton

18. When a book raises your spirit and inspires you with noble and manly thoughts, seek for no other test of its excellence. It is good, and made by a good workman.

—Bruyere

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ean of Students, Punjabi University,
atiala-147002.

19. In books, it is the chief of all perfections to be plain and brief.

—**Butler**

20. Books are men of higher stature; the only men that speak aloud for future times to hear.

—**Barrett**

21. He that loves not books before he comes to thirty years of age, will hardly love them enough afterward to understand them.

—**Clarendon**

22. A book is a garden, an orchard, a storehouse, a party, a company by the way, a counsellor, a multitude of counsellors.

—**H.W. Beecher**

23. Most books, like their authors, are born to die; of only a few books can it be said that death hath no dominion over them; they live and their influence lives for ever.

—**J. Swartz**

24. Books should to one of these four ends conduce, for wisdom, piety delight, or use.

—**Denham**

25. A great book that comes from a great thinker is a ship of thought, deep freighted with truth and beauty.

—**Theodore Parker**

26. To use books rightly, is to go to them for help; to appeal to them when our own knowledge and power fail; to be led by them into wider sight and purer conception than, our own and to receive from them the united sentence of the judges and councils of all time, against our solitary and unstable opinions.

—**Ruskin**

27. A bad book is the worse that it cannot repent. It has not been the devil's policy to keep the masses of mankind in ignorance; but finding that they will read, he is doing all in his power to poison their books.

—**E.N. Kirk**

28. The silent influence of books, is a mighty power in the world; and there is a joy in reading them known only to those who read them with desire and enthusiasm. Silent, passive and noiseless though they be, they yet set in action countless multitudes, and change the order of nations.

—**Giles**

29. If a book comes from the heart it will contrive to reach other hearts. All art and authocraft are of small account to that.

—**Carlyle**

30. Every man is a volume if you know how to read him.

—**W.E. Channing**

31. The first step to knowledge is to know that we are ignorant.

—**Robert Cecil**

32. The more you practice, what you know the more shall you know what to practice.

—**W. Jenkin**

33. Every branch of knowledge which a good man possesses, he may apply to some good purpose.

—**C. Buchanan**

34. Scientific knowledge is constantly changing. A discovery of one year receives confirmation the next or is thrown aside.

—**James T. Adams**

35. The end of all knowledge should be in virtuous action.

—**Sir P. Sidney**

36. Real knowledge in its progress, is the forerunner of liberality and enlightened toleration.

—**Brougham**

37. The word knowledge, strictly employed, implies three things viz., truth, proof and conviction.

—**Whately**

38. Pleasure is a shadow, wealth is vanity, and power a pageant, but knowledge is ecstatic in enjoyment, perennial in fame, unlimited in space, and infinite in duration. In the performance of its sacred offices it fears no danger, spares no expense, looks in the volcano, dives into ocean, perforates the earth wings its flight into the skies, explores sea and land contemplates the distant, examines the minute, comprehends the great, ascends the sublime—no place too remote for its grasp, no height too exalted for it reach.

—**De Witt Clinto**

39. True wisdom is to know what is best worth knowing and to do what is best worth doing.

—**Baljit S. Grewa**

40. Library is an everblossoming garden from where the seekers of knowledge gather the honeyed sweetness of life.

—**Baljit S. Grewa**

Responsibilities to Future Generations

The advancement in science and technology has made significant contributions to economic well-being of people. Increasing industrialization and urbanisation and excessive exploitation of natural resources have however adversely affected ecological balance and the capacity of land to support growing population. The intergenerational equity of options exercised by the human kind is seriously threatened by new genetic, nuclear and other technologies, new capacities for ecological change and certain socio-economic phenomena such as large scale underdevelopment and inequalities. All these impinge on the well-being of future generations, and the diversity of options available to them. Their interests are not represented in the decision making process of the present generations, or in the content of development programmes at all levels.

It is therefore desirable to preserve cultural and national heritage of mankind to protect the interests of future generations. With a view to sensitizing the economic and social planners, scientists, educationists and experts on environment, a regional conference on 'Responsibilities to Future Generations and their Environment (RFGE)' was organised at the Asian Institute of Technology, Bangkok from January 12-18, 1988. The Conference was jointly sponsored by the United Nations Educational, Scientific and Cultural Organisation (UNESCO), United Nations Environment Programme (UNEP) and International Environment Institute (IEI). The deliberations of the Conference were conducted under the chairmanship of Y. Fukushima (Japan) and Mr. G. Gunatillike (Sri Lanka) with Mr. M. M. Ansari (India) and Mr. D. Gayawali (Nepal) as rapporteurs of various sessions. The delegates from a number of countries and International agencies participated in the Conference.

In his opening remarks, Dr. Tony Macelli, Director, International Environment Institute, Malta said that one of the major objectives of the Conference was to clarify the interests of future human generations and to stimulate the world community to act to promote these interests explicity and actively. The concept of responsibilities of present generations to future generations is a logical complement to the universally respected norm of the common good of the human species, and the important concept of the common heritage of mankind. The participants at the conference emphasised the need for establishing a network of relations between individuals and institutions so as to promote the interests of future generations.

The Declaration adopted by the Conference and the programme of action suggested by the participants are as follows :

Declaration

Development and environment are the contexts in whice we may identify the interests of future generations. Without claiming that a single world-view or formulation can be shared in detail by everyone, we have come to the following consensus about the need for an alternative vision of environment and development, that would protect nature and the interests of present and future generations.

The environment consists of the non-living and living natural environment, the human-built physical environment, and the socio-cultural environment. Up to now, development has been the changing of parts of the overall environment in an attempt to secure a better human life, at least of certain groups or categories of people. That is, development has been an attempt to change the world for the sake of human well-being, the fulfilment of human potential.

However, from the ecological insights of modern science, and from observation of the environmental and human effects of human technologies, it is clear that the environment is part of man, and man is part of the environment. The image of the environment as something which is to be overcome through development is now clearly an inadequate image, and must be replaced by more holistic paradigms. Man-environment harmony is crucial, and must be maintained whenever the form of this harmony is altered in development.

A major indicator of human potential is the amount of available options and decision-making capacity of persons and collectivities in respect of their own life. They use these options to meet their basic needs and to develop their human potential in their own way.

However, humans are observed to have a biological, emotional, psychological, and spiritual orientation to collective living and endeavour. Thus, another indicator of the fulfilment of human potential should be seen to be the extent to which persons are able to fulfil themselves by contributing to each other's welfare and enrichment. Such a paradigm of human life would tend to ultimately favour the achievement of more harmony between individual and society. Social justice, of course, is one of the prerequisites for social harmony.

Harmony of the single man-nature system, personal and societal autonomy, and available personal and social option; and social solidarity, are thus indispensable elements which must be preserved or be improved in true development. These elements may then be used fore valuating whatever purports to be human development. The same considerations also suggest that the universal human values which people actually hold, within the diverse cultural traditions of humankind are respected in genuine human development.

Since economic and environmental development has been an attempt to promote human development, it must therefore be judged a failure when it does not pass the tests of diversity of available options, increased autonomy of persons and groups, promotion of human solidarity, and respect for universal human values. If we also accept the need for man-naure harmony; then the failure of many past development processes is even more clear.

Various significant processes in the environment, in the human species itself, and in the man-environment interface extend through time-periods that are long compared to the life of any one human generation. Some of these processes are the result of human action, and these are irreversible, and reduce available options for future generations.

Thus, development attempts are mistaken or shortsighted when they lack an intergenerational perspective and an intergenerational responsibility, such that the criteria already mentioned can apply also in the future: diversity of available options, human autonomy and solidarity, and respect for cultural values. The time-perspective for development must include future generations.

The criteria are here understood to relate to intragenerational values, but as applied to future generations affected by development attempts of the previous generations. They render illegitimate, for example, actions today that are bound to increase or maintain inequality among people of some future generations. However, the essential unity (e.g. felt unity, genetic unity) of the human species through time, requires that the required solidarity be also intergenerational, i e. between generations. Present generations contribute to their own human fulfilment when they feel and implement in action their solidarity with future generations. Similarly, the necessary autonomy should be also enjoyed by each generation, or each group of contemporary generations, who should not be subject to restrictions of options imposed by previous generations.

Also, because of the interconnectedness of many of these long-term processes, not only is the man-against-nature paradigm just as mistaken intertemporally as it was intratemporally, but also the consequences of holding it are likely to become catastrophic given enough time. Only a paradigm of man-nature wholeness and harmony is appropriate to guide an intertemporal perspective about life and development on planet Earth. This harmony may, and will undergo transformation while still remaining a harmony.

We conclude that development activity of present generations must inescapably follow a new vision, one with a long time-perspective encompassing present generations and future generations. The new vision insists on the preservation and enhancement of options, and autonomy. It also insists that present actions should promote justice and solidarity within the present generations, within future generations, and between present and future generations. The vision must be based on a changing harmony between man and nature.

We therefore affirm our own concern for present and future generations, and reflect the growing public concern that the interests of future generations should be protected. We believe the possibility of having a world for future generations that is more secure, more substainable economically and environmentally and richer in quality of life. For the realisation of this possibility we urge the present generations to design new approaches to promote and carry out the required transitions essential to a planet that is at the same time sustained and renewed and enhanced. These include:

—a demographic transition to a stable population;

—an energy and resource-use transition through technologies which rely on nature's "income" and not depletion of its "capital";

—a transition to patterns of human settlement which promote rural-urban harmonay;

—an economic transition to sustainable development and an equitable sharing of its benefits within and between countries and regions;

—an educational transition to a comprehensive and integrative understanding of the world and of human knowledge and wisdom;

—a cultural transition to a world or harmonious cultural diversity;

—a political, economic, and educational transition to a peaceful word without weapons of mass destruction;

We hold that simultaneous exis-
ce of poverty and opulence
stitutes an environmental and
nan threat extending to future
erations.

We urge that popular re-exami-
ion of values and lifestyles be
ouraged and broadened so that
it can be undertaken with an awareness of realities that concern the life of the planet today and that of the time of our children's children.

Programme of Action

In order to promote a value system that would be mindful of the interests of the future generations it is felt that a set of actions at the regional level as well as the international level must be initiated.

It is also felt that these actions must reach a broad spectrum of the the community that would facilitate the promoting of such a value system. The communities are :

—teaching community
—community based organizations (CBOs) and non-governmental organisations (NGOs)
—mass media
—religious communities
—artistic communities
—legal and judicial communities

Dr. Agrawala Takes Over

Dr. Surendra Kumar Agrawala
; taken over from Dr. Jagdish
rain as Secretary of the Asso-
tion of Indian Universities on 6th
bruary, 1988.

Born at Bilgram in District
rdoi (UP) on 18th January, 1929,
. Agrawala did his M.A., LL.M.
m Lucknow University. He was
arded a fellowship for Post-
aduate studies (LL.M) the Har-
rd Law School, USA. He
llowed it up with an LL.D. degree
m Lucknow University. A bril-
nt scholar, Dr. Agrawala claimed
old Medal for standing first at the
.M. examination and was awar-
d the Banerjee Research Prize for
st research work done in 1962 for
s LL.D. thesis.

A popular and devoted teacher,
taught law at Lucknow Univer-
y (1953-62), Aligarh Muslim Uni-
rsity (1962-65) and University of
ona where he headed the Univer-
y Department of Law from 1965
1985. He was adjudged the Best
niversity Teacher by the Govern-
ent of Maharashtra in 1978-79.
e took up the Vice-Chancellorship
f the Agra University in Novem-
er 1985 which he has relinquished
to take over as Secretary of the Association of Indian Universities.

A legal luminary, Dr. Agrawala was a member of Bar Council of India Legal Education Committee for two terms, a member of the Governing Council of Indian Law Institute, member of the first Academic Council of the National Law School of the Bar Council of India, and a member of the Executive Board of the International Association of Legal Science, The Hague. He has been on the Editorial Board of the Indian Journal of International Law and the Editorial Board on Constitutional Law of the Bar Council of India Trust.. He has been the Convenor, University Teachers Research Group of the International Law Association (Indian Branch) as also of UGC National Advisory Panel of Law. He was nominated as the National Lecturer in Law by the UGC in 1976-77 and was also called upon to deliver the K.M. Munshi Memorial Lectures in 1985 by the Indian Law Institute.

Dr. S. K. Agrawala

A widely travelled person, Dr. Agrawala participated in a number of international conferences, seminars and colloquia in Thailand, Greece, Nigeria, Nepal, The Netherlands, West Germany and USA.

He has published 7 books, over 30 research papers and has contributed to over a dozen anthologies.

Dr. Agrawala brings to his new office a rich resource of wide and varied experience. We welcome him and hope that under his stewardship, the Association will not only consolidate its present activities but also add new dimensions to its services to the Member Universities. □

Regional Strategy

The network which is designed for the Future program should be linked through personal and institutional means with networks on alternative development strategies.

In the very first phase of the program a set of state-of-the-art studies should be prepared concerning the responsibility to future generations in countries selected on the basis of diversities of culture and development levels.

The resulting studies must be synthesized by an interdisciplinary, group identified by the network to indicate strategies and modes of action for enhancing responsibility to future generations applicable to the diverse societies within the region. Some form of this interdisciplinary group should be involved with designing the methodology and framework of the state-of-the-art studies.

This material will be made available to the groups concerned with the future as identified above for dialogue, feedback, action and interaction.

International Strategy

In order to help raise the world consciousness regarding the long-term dangers to future generations, the IEI secretariat, together with the appropriate UN organizations, is to commission studies on the long-term hidden dangers in the present path of development in the scientific and technological fields as well as in forms of social organization. These studies must again be be disseminated among the communities in a way that will encourage further dialogue.

UNESCO, UNEP and IEI must encourage the active examination of paradigms in disciplines as they relate to the future and emerging trends. For example, in economics, some of the beliefs and practices that need re-examining from the prespective of the future generations are : B/C analysis and the discounting of the future, national accounting which values GDP rather than physical quality of life indicators, financial income rather than the richness of life, and the accounting system which does not distinguish between the output that comes out of renewable and non-renewable resources as well as the durability of capital over time. Such items can be found in most of the other disciplines too. In such studies special sensitivity must be shown to the interdisciplinary and integrative aspects of the disciplines to correct the adverse effects of specialization and fragmentation of human knowledge.

Concurrently with the above, some specific thematic studies should be carried out such as the schooling system of the fut
future modes of communicat
and the effect on social organ
tion, technologies facilitating dec
tralization, the future relations
between the built and the natu
environments, and global mig
tion and the impact on cultu
diversity of the future.

UNESCO should support
introduction of courses and p
grams into the education system
sesitize the younger generati
regarding the responsibilities to
future generations.

For further information, or if
are interested in the global netwo
or if you can send relevant artic
and texts or suggestions—ple
write to Dr. Tony Macelli, Futu
Generations Network, I.E.I.,
Foundation for International S
dies, Old University Buildi
Valletta, Malta (telex 16
FOUND).

[*Contributed by* M. M. Ansa

Harnessing Technology for Education

The Central Institute for Educational Technology (CIET) of the National Council of Educational Research and Training (NCERT) is reported to have undertaken the work of making the educational video programmes for the children. These programmes are expected to help in the realisation of the Government's goal of universalisation of primary education by 1990 for children up to 14 years of age.

The CIET, set up in 1984, is aided by State Institutes for Educational Technology (SIET) in six States, the Development and Educational Communication Unit (DECU) of the Indian Space Research Organisation (ISRO), and international agencies like the United Nations Development Pr
gramme (UNDP), UNESCO, a
the Asia Pacific Institute for Broa
casting Development (AIBD).

Set up for promoting an und
standing and utilisation of educ
tional technology for the spread
education, CIET realised that t
video programmes to be prepar
for children, most of whom we
from rural areas and non-Scho
going, had to be in their natur
locales and steeped in their o
culture. With this in view, t
SIET were established in the s
States, namely, Andhra Prades
Bihar, Gujarat, Maharashtra, Oris
and Uttar Pradesh covered und
the Satellite Instructional Televisi
Experiment (SITE) and the INSA
IB programmes.

The CIET initially provided he entire hardware to the SIETs, nd continues to provide the finance nd infrastructure like software nd training. However, most SIETs have now commenced production of their own programmes n their own language and culture. The programmes produced thus re beamed for six hours daily in hese six states.

DECU, formed in December 1983, has been engaged in aiding CIET in programme production, development and adaptation of video hardware, communications research, and training and was responsible for the production of science programmes for SITE.

The CIET invited experts of India for its in-country international training programmes under which six workshops have already been held in different parts of the country.

Super Conductivity Research Stressed

Prof. C.N.R. Rao who heads a special cell appointed by the Prime Minister to monitor research in super conductivity called for a greater investment in super-conductivity research which was a major task before national laboratories. He was delivering the Zaheer memorial lecture at the general plenary session of the 75th Indian Science Congress in Pune recently. Prof. Rao said the three major tasks were to make super-conducting materials of proper from and shape, find newer and better materials, and intensify research into this challenging field. He said research activities could be strengthened by universities as development of her superconductors would dramatically alter the quality of life.

Prof. Rao said among the applications were big magnets, levitation and nuclear magnetic resonance which had great relevance to modern medicine. India had to remain in the race for superconductivity as no other country will give it to us, he added.

Earlier he gave a detailed description of superconductivity, an important state of matter when materials do not offer resistance to passage of electricity or attain zero resistance. Prof. Rao detailed the experiments conducted by students at IIT Kanpur in the 1970s and at the Indian Institute of Science Bangalore.

Science Congress Recommends Mathematics Council

The platinum jubilee session of the Indian Science Congress held recently at Pune has recommended setting up of an Indian Council of Mathematical Sciences as a tribute to the great mathematician Ramanujam in the year of his birth centenary, to give thrust to the development of the subject. The Congress noted that mathematics education neglected so long needed priority attention. The Department of Science and Technology (DST) should be entrusted with the task of research in mathematics, hitheto the sole privilege of the Department of Atomic Energy (DAE).

The session also called for customs exemption for chemicals, biochemicals and other consumables required for research in educational research institutions.

It recommended that a National Institute of Physiology be set up to provide for researches of the frontier areas of rapidly advancing neuro physiology of behaviour and behavioural disorders and on the effect of electromagnetic field on human physiological aberrations. It added that such an institute could concentrate on the study of the influence of the mind in the healing processes through yoga and hypnotherapy indicating mind modulation over bodily processes.

The study of sports physiology for better performance in sports and athletics and up-to-date survey of the work on management of behavioural disorders has also been suggested.

Another national institute mooted is for psychology to promote sustained work in frontier areas identified as health, environmental sports, managerial psychology and inter-disciplinary and intra-cultural as well as cross-cultural understanding of the individual.

Educational infrastructure for Border States

A new scheme to strengthen educational infrastructure and provide job opportunities to people living in the border States of Gujarat, Punjab, Rajasthan and Jammu&Kashmir has been initiated by the Human Resource Development Ministry, Govt. of India. An amount of Rs. 200 crore has been earmarked for the scheme during the Seventh Plan.

The proposed educational programme is intended for the overall development in the border areas. In the current fiscal year, Rs. 25 crore is proposed to be spent on education under the Border Area Development Programme.

A sanction committee has been set up under the chairmanship of the Education Secretary to oversee implementation of the various programmes under the scheme. The committee includes representatives of the Planning Commission and the State Governments.

JNU Entrance Exam Accredited

The UGC has accredited the JNU Entrance Examination conducted all over the country for admission to M. Phil, M. Tech, Ph.D. programmes in the schools of Computer and Systems Sciences, Life Sciences, Environmental Sciences, Physical Sciences and the Centre for Biotechnology on par with the national educational testing (NET) examination conducted by the UGC for the award of junior research fellowship to candidates pursuing M Phil., M.Tech., Ph.D programme in various science disciplines.

The decision has been made in pursuance of the report of the high powered committee appointed by the Commission consisting of Prof. P. M. Bhargava, Director, Centre for Cellular and Molecular Biology, Hyderabad, Vinod Gaur, Director, National Geophysical Research Institute and Mrs Archana Sharma of Calcutta for evaluating the standards of the entrance examination conducted by the JNU in over 24 centres all over the country for admission to M. Phil, M. Tech, Ph.D.

The accredition granted by the Commission for the present was for a period of three years.

As a result of the accredition of the JNU entrance examination for these schools, the candidates, joining these programmes in the schools of Computer and System Sciences, Life Sciences, Environmental Sciences, Phyical Sciences and Centre for Biotechnology on the basis of their inter-se merit in the all India entrance examination conducted by the University would become automatically eligible for the award of Junior Research Fellowship of the UGC without their having qualified the NET examination conducted by the UGC.

Centre for Science & Technology

An International Centre for Science and Technology Education is proposed to be set up by the Government to encourage experiments in science and technology.

The ICSTE has already been registered under the Societies Registration Act and is expected to start its activities by 1989. It will have aresource centre, a media centre a computer centre, a laboratory and a workshop.

The Human Resource Development Minister, Mr. P.V. Narasimha Rao, who is the Chairman of ICSTE, has nominated the Educational Adviser (Technical Education) as Member Secretary of both the Society and its Governing Body.

The Centre will provide an international forum for contacts between educationists, scientists, planners and administrators. It will also promote exchange of national groups of teachers and researchers.

Consistent with the National Policy on Education which lays stress on research as essential component of higher education, the proposed Centre will provide the infrastructure for research and development in various institutions.

The Centre will cover educational institutions in the technical education system which offer undergraduate and postgraduate programmes, namely, the Indian Insti tutes of Technology, the India Institutes of Management, th Regional Engineering and Stat Government colleges as well other non-Government institutio and colleges approved by the Al India Council for Technical Edu cation.

Courses in Environmenta Science & Engg

The Centre for Environmenta Science and Engineering (CESE) a Indian Institute of Technology Bombay, has recently introduced short-term training programme fo its graduates, enabling the II engineers to emerge as traine environmentalists.

The new course will be conduc ted in cooperation with Pollutio Control Boards and various researc and development institutions.

The CESE also proposes t introduce a five-year integrate programme on Environmenta Science and Engineering (ESE) Entrants to this programme will b supported by interested industrie enabling industry projects to obtai an IIT-Industry interaction.

In order to focus attention o environmental issues and to creat awareness among technologists an scientists, some basic courses i environmental science and engi neering were initiated at the under graduate level in 1974. Later a inter-disciplinary M. Tech pro gramme was started in 1977 and doctoral programme in 1978.

Panel on Distance Education

The Government is reported t have set up a coordination counci to look into the policies and utilit courses to ensure that uniform ndards of distance education are aintained by the open universities.

The council, comprising the ice-Chancellors of the Indira andhi National Open University GNOU), three State open univer-ties and representatives of the overnment and the University rants Commission (UGC), has een mooted to avoid duplication f course materials and minimise e financial burden.

It is hoped that gradually GNOU will assume the role of a entral body coordinating and verseeing the activities of all the tate open universities.

UNESCO Award for V.P. Singh

Dr. Ved Pal Singh of the De-artment of Botany, University of Delhi has bagged the UNESCO/ ROSTSCA Young Scientist Award n the field of applied Microbiology nd Biotechnology for 1987. The ward has been presented to him or his work on calcium mediated macromolecular functions and growth of aerobic spore forming hermophilic actinomycetes--Ther-moactinomyces vulgaris.

The annual award is given by UNESCO Regional Office of Science and Technology for South and Central Asia to the young scientists or engineers below 35 years of age in the field of Informatics and Application of Computers in Scientific Research, Applied Microbiology and Biotechnology and New and Renewable sources of Energy.

Kautilya Award Scheme

Ministry of Planning, Govt. of India, have launched 'Kautilya Award Scheme' to encourage writing of original books of high order in Hindi on technical subjects relating to planning. The following awards will be made under the scheme :

1st Award (One)	Rs. 5000/-
IInd Award (One)	Rs. 3000/-
Consolation Award (Two)	Rs. 500/- each

Original books/manuscripts relating to planning, printed/written in Hindi may be sent, in prescribed form, for consideration for award. Only those books and manuscripts would be accepted which have not received financial assistance or subsidy under any other scheme.

Authors desirous of participating in this scheme should send their manuscripts/printed books by 31st March, 1988 positively.

Details of the scheme, prescribed form and other information may be obtained from : Deputy Director (OL), Planning Commission, Yojana Bhawan, New Delhi-110001.

News from Agril. Varsities

Seed-cum-Fertilizer Drill

The University of Agricultural Sciences, Bangalore, has designed a sowing implement namely seed cum fertilizer drill to overcome some of the problems in production of groundnut.

This newly designed seed-cum-fertilizer drill for groundnut, which has many advantages over the conventional implement, helps farmers to sow simultaneously four rows of seeds along with fertilizer.

The local method of sowing groundnut requires one bullock pair with one local plough and three men, one to handle the bullocks, one man for seeds and one man for fertilizer application. This method opens only one furrow. The total cost of sowing at the present rate works out to Rs. 60 a day and the team could cover only ½ hectare per day.

The newly designed seed-cum fertilizer drill for groundnut (shoe type) requires a pair of bullocks and three men—one to run the bullocks, one for handling seeds and one for fertilizer. The cost per day of sowing at the present rate comes to Rs. 60. As the area covered is 1.25 hectares a day, the cost of sowing works out to Rs. 43 only. Further, it helps in the correct placement of seeds and fertilizers in the soil.

The total fabrication cost of the seed-cum fertilizer drill (shoe type) is Rs. 500 approximately. More particulars of this seed drill can be had from the Chief Scientist (Agricultural Engineering) Operational Research Project for Dryland Agriculture, GKVK, Bangalore-560065.

Colic Surgery

A team of Veterinary Surgeons of the Punjab Agricultural University performed, for the first time in India, a surgical operation on a 20-year old pony mare for the treatment of colic (Impaction of colon). The surgery was performed under general anaesthesia. Abdomen was cut open and the impacted colon was emptied and suctured back. The mare recovered on 12th day after the operation.

"Colic" is caused by having pain in the abdominal region of a horse which invariably kills the animal. The disease which is very common in horse is due to one of the following conditions : impaction, tympany, twisted guts, volvulus, intussusception, etc. and urinary problems. This operation has opened new vistas in the field of Veterinary Surgery. Many costly horses can thus be saved which otherwise would usually result in death and great economic loss to the horse breeders.

CALENDAR OF EVENTS

Proposed Dates of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
February 10-14, 1988	Workshop on Science and Technology	To initiate a dialogue for the interaction of the Government, industry, institutes and to update the present technology.	Department of Astronomy & Space Sciences, Punjabi University in collaboration with the Punjab State Council of Science & Technology.	Prof. H.S. Gurm, Director, Department of Astronomy & Space Sciences, Punjabi University, Patiala-147002
February 18-20, 1988	Dalit Literature	To review and reassess the role and relevance of Dalit Literature in building an alternative perspective on Indian social, political and cultural life.	Centre for Soical, Studies, South Gujarat University, Surat.	Prof. S.P. Punalekar, Centre for Social Studies, South Gujarat University, Surat-395007
Feb. 29-March 2, 1988	Workshop on Internal Reorganization of English Honours Syllabi	To reorganize the English Honours syllahi to meet the specific needs of the students.	Department of English, Ramakrishna Mission Vidyamandira, Howrah	Mr. Sunanda Sanyal, Director, Ramakrishna Mission Vidyamandira Belurmath, Howrah.
March 10-12 1988	Nationalism : Problems and Challenge	To discuss different aspects of the development of nationalities during 19-20th centuries and their relationship with Indian nationalism.	Centre for Social Studies, South Gujarat University, Surat in collaboration with K.M. Munshi Centenary Committee, Gandhinagar.	Prof. Ghanshyam Shah Centre for Social Studies, South Gujarat University, Surat-395007
May 9-June 4, 1988	Summer Course in Analysis and Probability	Topics to be covered are Probability Theory and Stochastic Processes, Fourier Analysis & Functional Analysis.	Indian Statistical Institute, Bangalore Centre.	T.S.S.R.K. Rao, In-charge, Summer School 1988, Stat-Math. Division, Indian Statistical Institute, R.V. College (P.O.) Bangalore 560 059
May 18-20, 1988	Conference on Recent Advances in Mathematical Techniques and Applications	Topics proposed to be discussed include Mathematical Physics, Mathematical Methods, Bio-fluid Dynamics, Chaos, Stability and Turbulence	Dr. Y.S. Parmar Institute of Mathematical Sciences, Shimla.	Dr. J.R. Gupta, Organising Secretary, Dr. Y.S. Parmar Institute of Mathematical Sciences, Hainault, Shimla-171002
July, 12-14 1988	**International Symposium on Recent Advances in Male Reproduction**	**The Symposium will focus on Molecular Biology of Inhibin, Androgen Binding, Protein Regulation of Fertility, Peptides in Testis Function and Steroidogenesis in Testis**	**University of Hyderabad in collaboration with the Indian Society of Andrology**	**Prof. P.R.K. Reddy, School of Life Sciences, University of Hyderabad, Hyderabad 500134**
September 26-28 1988	**International Conference on Welding Technology in Developing Countries**	**To provide an opportunity to scientists and technologists from developing and advanced countries to share their experiences in the area of Welding Technology.**	**University of Roorkee, Roorkee.**	**Prof. P.C. Gupta, Organising Secretary, International Conference on Welding Technology in Developing Countries, Department of Mech. & Ind. Engg., University of Roorkee, Roorkee-247667**

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Philosophy

1. Gyi, Khin Maung. *An examination of the concept of Asankhata Dhatu in the Dhammasamgani.* Delhi.
2. Mishra, Arun. *Synonymy.* Delhi.
3. Pathak, Om Prakash. *Prayogika manovigyana : Puggala Pannatti ke pariprekshya mein.* Delhi.
4. Soni, Sunil. *Fredrik Neetshe ke darshan mein Ishwar, Manushya aur Jagat sambandhi sam-pratyayon ka vartman sandarbh mein adhyayan.* Devi Ahilya. Dr. B. Khan.
5. Sukumaran, M. *The social philosophy of Sree Narayana Guru.* Kerala. Dr. K. Saratchandran.

Fine Arts

1. Bhavsar, Veer Bala. *Bagar Pradeshiya adim kala abhiprayon ka vishleshanatmak adhyayan.* Rajasthan. Dr. R.K. Vashishtha.

Language & Literature

English

1. Bandyopadhyay, Surabhi. *E.M. Forster's Howards End: A stylistic analysis.* Calcutta.
2. Choudhury, Shashikala. *Raja Rao's novels : A transmutation of philosophy.* IIT Delhi. Prof. M.P. Jain.
3. Das, Biswanath. *Sentence connection in English and Oriya : A comparative study.* Sambalpur. Dr. E.K. Tripathy.
4. Krishnan, A. *Emerson and Maraimalai Adigal : A comparative study.* Madurai.
5. Raghunandan, Lakshmi. *Contemporary Indian poetry in English with special emphasis on Nissim Ezekiel, Kamala Das, R. Parthasarathy and A.K. Ramanujan.* Bangalore, Dr. C.N. Srinath.
6. Rajan, C.K. *Language of the fictional writings of Mulk Raj Anand.* Kerala. Dr. Elias Valentine.
7. Sheela Sastry, Eswara. *The rabbit syndrome : The theme of entropy as devaluation of human worth in the major fiction of John Updike.* Andhra.
8. Vaidyarathan, Nirmala. *Vision and design in the novels of Willa Cather.* IIT Delhi. Dr. (Mrs) Sunita Jain.

Sanskrit

1. Babeley, Abha. *Sanskrit roopakon mein prakaran ka vikas.* HS Gour. Prof. R.V. Tripathi.
2. Jain, Sushma. *Acharya Amitgati : Ek anusheelan.* HS Gour. Dr. B.C. Jain.
3. Parashar, Kanhaiya Lal. *Vedic vangmai pappuni mimansa.* Panjab.
4. Sasidharan Nayar, P.K. *Advaita Vedanta in the work of Sri Narayana Guru. D. Litt.* Madurai.
5. Sunita Kumari. *Nature and function of Sakti in Kashm Saiva Darshan.* Jammu. Dr. Uma Pandey.

Punjabi

1. Raina, Pritpal Kaur. *A critical study of contemporar social problems in Nanak Singh's short stories.* Jammu. D Baldev Raj Gupta.
2. Ujjal Singh. *Punjabi sahit vich Nanak-theme.* Delhi.

Hindi

1. Bhargava, Asha. *Hindi upanyason mein bal manovigya* Rajasthan. Dr. D.P. Gupta.
2. Dhingra, Suman. *Tulsidas ke kavya mein shastriy punrajagaran ke tattvon ka adhyayan.* Panjab.
3. Durgesh Nandini. *Swatantrayottar Hindi upanyaso mein purush patra.* Osmania.
4. Gupta, Munnidevi S. *Acharya Chatur Sen ke kath sahitya ka sanskritik anusheelan.* Nagpur. Dr. Hanuma Naidu.
5. Indapurkar, Lata Dattatraya. *Sathhottari Hindi a Gujarati kahaniyon mein nari jeevan.* Baroda.
6. Mishra, Indu. *Maharaja Raghuraj Singh aur unk Rukmini Parinya : Ek sameekshatmak anusheelan aur paat sampadan.* HS Gour. Dr. Balbhadra Tiwari.
7. Navlakha, Gunmala. *Swatantrayottar kavita mei rajnaitik chetna.* Delhi.
8. Neelam Kumari. *Hindi kahaniyon mein adhunikikara Ajnobipan, 1950-80.* Jammu. Dr. Janak Gupta.
9. Rawat, Shashi. *Adhunikta kee drishti se Rajender Yada aur Kamaleshwar ke katha sahitya ka tulnatmak adhyayan* Panjab.
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11. Sharma, Niraja. *Rajendra Yadav ke sahitya mein vyak aur samaj ka chitran.* SNDT. Dr. (Smt.) Uma Shukla.
12. Shrivastava, Savita. *Sant aur Sufi kavya mein naiti tattvon ka tulnatmak adhyayan.* Ravishankar. Dr. Gajana Sharma.
13. Sowbhagya Sundari. *Shri Naresh Mehta : Vyaktitv aur kritiva.* Osmania.
14. Sudan, Om Prakash. *Satya Harishchandra pe rachit Hindi sahitya : Vishleshan, mulyankan.* Jammu. D Sansar Chandra.
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19. Vijaya Bala. *Prasad ke kavya mein abhijatyavadi evam*
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17. Yadu, Rashmi. *Madhya Pradesh ke shaskiya prakash-*
on kee Hindi mein sanshodhan. Ravishankar. Dr. R.C.
ehrotra.

rdu

1. Chark, Ram Ditta. *Urdu kee aap beetiyon aur shakshi*
ıddaston ka jaeza. Jammu. Dr. Zahur-ud-din.

2. Niazi, H.R. *Mohammad Ali Naikash Akbarabadi : Life*
ıd works. Rajasthan. Dr. M.A. Baidi.

3. Suri, Ved Prakash. *Tewaifon ke mutalliaque Urdu*
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hand Jain and Dr. Zahur-ud-Din.

ssamese

1. Jayantimala Devi. *Ergativity : A historical analysis in*
ssamese. Delhi.

riya

1. Pany, Prafulla Kumar. *Orissare loknatyara parampara.*
ambalpur. Dr. G.C. Mishra.

amil

1. Kanchana, R. *A botanical study of a few plants referred*
in Tamil literature. Madurai.

2. Manickam, R.K. *Heroes in Tamil epics, Udayana and*
eevakan : A comparative study. Madras. Dr. E.G. Baskara-
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3. Poonguran, T. *Tamil ballads on Mahabharatha.*
adurai.

Kannada

1. Dande, Jayashree Veranna. *Bedagina Vachanagalu.* Gulbarga.

Telugu

1. Samanthaka Mani, P. *Andhra Mahabharatamulo Sri Krishna patra.* Osmania.

Geography

1. Kaul, Man Mohan Nath. *Fluvial and glacial geomorphology of Lidder Valley, Kashmir, India.* Panjab.

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2. Datta, Jyotsana. *Religions syncretism in Eastern India, C 600-1300 AD.* Calcutta.

3. Kurvey, Balkrishna Shamrao. *History of civil defence in India in the post-independence period.* Nagpur. Dr. K.A. Shete.

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EDUCATION NEWS INDEX

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University News

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Prof, Ram Meghe, Minister for Education, Govt. of Maharashtra, lighting the lamp to mark the inauguration of IUNYFEST '88 hosted by Amravati University and Punjabrao Krishi Vidyapith at Akola.

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Editor :
SUTINDER SINGH

8 1988
C.F.T.R.I., MYS

Creativity and Non-Violence

Umrao Singh Chaudhari*

Martin Luther King used to say that Mahatma Gandhi was probably the first person in the history to lift the love ethic of Jesus above mere interaction between individuals to a powerful and effective social force on a larger scale. Gandhi preached and practised that the love that suffered was more powerful than the force that inflicted pain and suffering. For him non-violent insistence on truth was in fact a 'moral equivalent of war'. According to Gandhi an individual prepares himself for non-violent resistance on important issues not only by cultivating appropriate sentiments but also by daily discipline and control of his thoughts, words and actions.

Can non-violence and creativity go together ? The answer would be a big 'yes' and small 'no'. Considerable similarity exists between the characteristics of creative people, identified by the researchers, and those of non-violent outlined by Mahatma Gandhi. Based on sporadic and embryonic research, on the other hand, there are some findings which show positive relationship between creativity and aggressive behaviour. To me, these results are illusory and misleading, because creativity is not possible without living harmoniously and communicating truthfully. Researches, therefore, have to go a long way to resolve the riddle of relationship between creativity and aggression or violence.

Creative people are self-starting, confident, assertive and resourceful. Because they are confident they are also tolerant where there should be tolerance. Tolerant people are peaceful and cooperative. They are courageous too. They dislike domination and resist coersion and exploitation. A person who is able to engage in creative thought and action often faces some degree of misunderstanding, lack of communication and at times severe rejection by his contemporaries who are unable to grasp or accept the significance of his idea or discovery. A creative person possesses a sort of overwhelming passion for creation. On account of this driving force sometime some uneasiness or temper tantrums can be seen in the behaviour of a creative person. But, in no case this should be construed as a sign of delinquency or aggression. It has, perhaps, rightly been said that creative people can give up but they cannot give in.

Man and woman can create by planting seeds, by producing material objects, by synthesizing a piece of art, by transforming an idea, by loving each other, and by relating truthfully and harmoniously with others. In the act of creation man transcends himself as a creative, raises himself above the passivity and accidentalness of his existence into the realm of purposefulness and freedom. The act of creation presupposes activity and care. It presupposes love for that which one creates. How then does man solve the problem of transcending himself, if he is not capable of creativity, if he cannot love ? This question is answered by Eric Fromm : "The man who cannot create wants to destroy because in creating and destroying he transcends his role as a mere creature".

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* *Reader, Department of Education, Devi Ahilya Vishwavidyalaya, Indore.*

Walt Whitman in his preface to the first edition of *Leaves of Grass* said : "We are all great poets, but only the greatest poets know it." Therefore, the creative persons who know or sense that they are creative like to express themselves, and to display their productions for others to see. The creative person then is on the assertive side. Consequently, his behaviour might give an appearance of little positive aggressiveness. But, this certainly is not an antisocial aggressiveness which hurts and harms other members of the society. Many a times, an artist or a creative person is rebuffed and frustrated by the paternalistic and militaristic attitude of the elders, teachers and persons in authority. Such attempts to bend him make him revolt and show counter agression. Mostly, these characteristics tend to go with outstanding creative personalities. E. Paul Torrance reported that children sometimes have some awareness of this social situation and display it in the stories they write.

Those who are genuinely creative are the people who enjoy sound mental health and face personal, interpersonal and other kinds of problems with poise and equanimity. They are ingenuous and altruist. They are fearless and upright. Their soul-force is awakened to resist attempts aiming at manipulation and domestication. Using Gandhi's words we can say that they are the butterflies who strongly believe that the freedom of the sky is better than the shelter of the cocoon.

A creative person is androgynous—a beautiful blending of both masculine and feminine traits. In F. Barron's study it was found that creative men possessed such traits as confidence, determination, ambition and power along with sensitivity, nurture, intuition and aesthetic sense. Integration of necessary sensitivity and intuition with purposive action and determination is conducive to creativeness. In other words, it can be said that a creative individual has the unique ability to unite the left (analytical) and right (spatial) hemispheric activities of the brain. Thus like a Gandhian non-violent person, he is a combination of both toughness and tenderness.

A variety of motivational factors such as compensation for inferiority, destructive impulses and self-actualization, regarded by some people as characteristics of the creative persons, are also thought to be related to delinquency. No doubt, studies have shown that some type of delinquent reaction is an attem to achieve substitutive compensation through deli quent activities. A.H. Maslow considered childre vandalism to be more often a destructive play mo vated largely by curiosity. Erickson also sees a co nection between adolescents' experimenting with fa tasy and reality and some delinquent behaviour.

The characteristics of delinquents do not seem be those of the creatives. It has been reported in so studies that delinquents scored lower on measures creative thinking than the non-creative delinquen This finding probably suggests that delinquents mig be conformative in nature, and also they might not able to find many ways to solve their problems. has also been evidenced that creative problem solvi technique increases creativity and decreases aggressi tendencies in the individuals. The creative childr show emotional stability, self-confidence, willingne to be self-critical and less anxiety ridden than no creative youngsters. Creativity is based on love a on the happy, guilt-free disposal of aggression socially acceptable channels. In the words of Ma low, psychological health and absence of psycholog cal defensiveness are the inner conditions for creat vity.

Creativity does not mean leaving the field free every expression of human nature. The ways invention and discovery also follow the course freely accepted discipline and intellectual standard Denying the role of discipline and rejecting all t rules and models is out of the question. Although the long run the discipline and rules most compatib with inventive faculties are those which an individu has perfected for his own use.

By nature, man seems to be torn between tw longings : security and adventure. Struggle is th nucleus of human life. But, struggle creates tensio and tension at times makes man behave in an aggre sive and violent manner. So, to conceive a societ which is completely free from violence will amount t asking for the moon. We can, however, aim creating a society in which aggressive tendencies man and woman are utilized for constructive an creative purposes, and the scope for their indulgin in violent and destructive behaviour is reduced to th minimum possible limit by ensuring an open climat in the institutions and organizations.

Private Initiative in Higher Education

A Critique on the Andhra Pradesh Model

D. A. Ghanchi*

ckground

In the post-independece period India has witnessed phenomenal quantitative growth of higher education. ere is a manifold increase in the number of institions, in the student population attending those stitutions, and consequently in the amount of money vested in the enterprise of higher education. This plosion has created many problems that need our tention.

As stated by Shri N. T. Rama Rao, the Chief inister of Andhra Pradesh, in his note circulated nongst the Vice-Chancellors who had gathered at yderabad for the 62nd annual meeting of the Assoation of Indian Universities in December 1987, Runaway explosion of higher education has resulted serious distortions in the educational system. Besides ffecting adversely the allocation of resources to the chool education sector, within the higher education ub-sector itself the distortion has resulted in an ver-emphasis of general education at the expense of echnical education.'' This is the experience of almost all the states in the Indian Union, and that has een the burden of the findings of several comnissions and committees that investigated the state of he art prevailing in the field of education during the ast four decades.

To remedy the twin distortions, viz., development of the higher education sector at the cost of the school education sector, and an over-emphasis on general education with a consequent neglect of vocational education, the Andhra Pradesh scheme proposes to encourage the private initiative in the form of a cooperative structure to supplement Government efforts in post-secondary school area, namely the + 2 stage of higher secondary or junior college education.

Assumptions

The main assumptions underlying the proposed scheme are as follows :

(1) People's involvement, particularly parents' involvement, in the management of higher education is likely to lead to an all round improvement in the system in its structure, contents, procedures, management, human relations, etc.

(2) The cooperative form of institutional management is likely to promote better economic health of the institution by introduction greater accountability on the part of all and at the same time ensuring profitability of the investment made therein.

(3) Because of the elimination of the traditional form of financial assistance by the State, the private manangement will enjoy considerable freedom of action in all spheres of operation, be it policy making, implementation of the policy, introduction of innovations, generation of resources and so on.

The Scheme

Based on the above mentioned assumptions, the scheme is to make shape asunder :

(1) A cooperative society will be formed with membership open to the parents of the students of the concerned junior college and to donors. The former will have voting rights but the latter won't.

(2) The junior college under the scheme will be located at the Mandal headquarters. Presumably, the college will be established by the cooperative society that will be formed by the parents of the prospective students and some donors. if available.

(3) The physical infrastructure of the college will presumably be provided for by the state government at the initial stage.

(4) The Executive Committee of the college will have wide powers to manage the college as an autonomous body. Only the annual report and the audited statement of account will have to be sent to the state government for information.

(5) The college will be a self-financing cooperative venture depending primarily on tuition fees and secondarily on private donations, and on returns on its investment like any other cooperative society in the economy.

Implication

The scheme, thus envisaged, signals a departure from the two major prevailing models of management,

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**Pro-Vice-Chancellor, North Gujarat University, Patan, N.G.*

namely, the charitable public trust model and the private ownership model. The cooperative model advocated here is expected to combine the egalitarian aim of the former and the profit making approach of the latter. Unless there is a built in provision in the constitution of the proposed cooperative body for appropriate checks and balances, it is feared that it may be overtaken by the numerous evils that afflict the cooperative sector in the country.

Besides, it is the practices adopted and traditions formed through the operation of the constitution that would determine the efficiency and integrity of the working of the managerial mechanism. The nature of the composition of the managing committee comprised of parents is likely to be constantly fluid because of the floating student population, and hence, it is less likely to develop stable and durable framework and norms of management. No educational enterprise can sustain its health, strength and credibility in a climate of managerial uncertainty. To correct this, it would be necessary to provide for a stable managerial core consisting of parents, teachers, students and community representatives from different walks of life.

The college is to be a self-reliant economic entity for all its maintenance and development costs. There will be neither state funding nor any income from capitation fees. .The only source of income would be the tuition fees of students.

If the college is to be run entirely on students' fees, "a fair return on the capital invested" is to be ensured and a dividend is to be distributed from the profit (or euphemistically, the surplus), none but the children of the well-to-do alone will be able to join it, for only they would be economically well-off to pay the fees that will be flexible in the context of prevailing prices.

Such a proposition runs counter to the philosophy of equality of access to opportunities of education propounded in the NEP 1986. Therefore, a privision will have to be made for financial assistance by the state government or the managing body to the children of the poor, the deprived and the disadvantaged, particularly of the weaker sections of population in order that they may join the junior colleges.

The Executive committee of the management is to be vested with wide-ranging powers "to monitor, supervise and control the administration, to look into the discipline of the teaching staff, the non-teaching staff and the students, to review the functioning of the institution, to introduce new programmes of genera and technical study according to local needs and i consonance with the developments in science an technology, and to look after the over-all maintenanc and running of the various departments like th hostels, libraries, laboratories, play-grounds, etc."

These are the most vital functions of any management body of an educational institution. It is th quality of the educational performance of a corporat body that will ultimately justify its existence. In orde to ensure the objectivity, the relevance and the socia utility of every managerial decision, the criterion o decision making should not be "a fair return on th capital invested" in order to declare a dividend to th share holders, but should be a sound educationa outcome for the all round development of the personality of the student with a clear emphasis on th realisation of excellence in whatever he does in th pursuit of knowledge, understanding, skills and sterling character.

The withdrawal of the government from the field o junior college education and the consequent cessatio of interference in the management of the institution i a commendable feature of the scheme. However, wit the prospects of an expanding role of the +2 stage o school education, particularly that of its vocationa stream with its inevitable implications for the subsequent stage of higher education, no popular government can abdicate its responsibility of supporting this stage. Therefore, appropriate intervention strategy supported by adequate resources, must be evolved to help the cooperative experiment work successfully and effectively.

The concept of autonomy built in the cooperative model is decidedly praiseworthy. However, it will be necessary to build up a network of these institutions to ensure coordination *inter se* at the state level with the provision of an apex body with powers of accreditation, guidance, evaluation and control.

Conclusion

Let's see what it is in the Andhra Pradesh scheme that can commend itself for favourable consideration and, if found suitable to serve educational purposes, for adoption, albeit with appropriate adaptations.

(i) The scheme recognises the role of the parents in having their say in the matters of their children. And it is more substantial than a token association in the form of a nominal parent-teacher organisation. In fact, the parents will have a meaningful participation

lmost an exclusive capacity to guide the destinies
he junior colleges as well as of their children. This
challenging as well as self-fulfilling role for them.

(ii) The management committee has been endowed
h enormous powers to run the colleges. If it wields
m with imagination and foresight, understanding
sympathy, quality education would be a logical
duct of its labour.

(iii) There is a tremendous scope for making edu-
ion relevant to the needs of the community because
the freedom and ease with which the management
nmittees can effect change in curriculum, encourage
novations and promote excellence.

(iv) As the students have got to pay fees for their
tion, and their parents are to run the management,
re is an in-built assurance of greater commitment
and indentification with the goals of the institution
d fewer occasions for the type of student indisci-
ne we find in today's educational institutions charac-
ised by anonymity and alienation.

(v) Last but not the least, the scheme has elements
autonomy and social accountability in it. These are
e ingredients of building up future structures of hig-
r education in the country in order to foster initia-
ve and adventure in the field.

However, the Andhra Pradesh scheme has serious
nitations too. For example :

(i) On the face of it, one of the prime movers of
ne scheme is the profit motive even though it is
ought to be modelled on the cooperative principle
utting social service and welfare above economic gain
nd profit. This guiding force is likely to influence
ne decisions of the managing committee in the long
un while deciding about staff recruitment, develop-
nent plans, student services etc.

(ii) The idea of running an educational institution
xclusively on the income from students' fees is repug-
nant to the philosophy of egalitarianism in a country
whose 50% of population lives below the poverty line.
Even if the scheme claims to prohibit overt capitation
ees for admission, flexible tuition fees for the main-
enance of the college would be a form of covert capi-
ation fee and it would negate social justice.

(iii) The exit of the government from the arena of
playing an active role as the financial promoter and
pporter of education for its maintenance, let alone
its development, is not consistent with the constitutio-
nal obligations as well as moral commitment of a
government under democracy.

(iv) In handing over the entire management of the college to the parents alone, barring, of course, a few donors on the committee, if any, and in not including the teachers, the supporting staff, the vast community and numerous social agencies, the scheme unwittingly, emotionally though, creates a lopsided structure to manage the complex educational enterprise of a developing country. This remedy may prove worse than the disease of distortions N.T.R. has listed in his note.

(v) Finally, the scheme in the present form is nebulous and lacks an organised shape. It hasn't been stitched organically in the total canvas of our educational set up. At the most, it may be taken up for a try out on a pilot basis at a few selected places. The rest of the country should eagerly wait for its outcomes.

To conclude, it requires a rare moral courage to think of and propose an innovative idea in a social milieu that is known for its conventional ways of thought and action. N.T.R. has shown that courage through his note for which he deserves all admiration. ☐

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Application of Zero Base Budgeting Techniqu to University Financial Administration

A Case Study of Amravati University

Sanjay Shankar Kaptan*

Introduction

The need for an effective budget procedure is increasingly apparent in both the industry and the government. All institutions must adopt to an environment in which the allocation of resources presents a continuous and constant challenge with decreasing corporate profits, rising costs and with the government increasingly facing a resource crunch. To effectively allocate limited resources a budget procedure must determine how the funds be spent ? This requires a type of budgeting procedure that would require us to identify and analyse what we are going to do, set goals and objectives, make the necessary operating decisions and evaluate changing responsibilities and work loads not after the budgeting process but during it, as an integral part of the process. This brings us to the concept of Zero Base Budgeting.

Zero Base Budgeting popularly known as Z.B.B., is not only useful for big private corporations or multinationals but charitable institutions and no profit organisations can also adopt such a technique for their budgeting needs. Another important reason for applying this technique in educational institutions like university is that almost all educational institutions face problem of paucity of funds. Their receipts and revenues are too short of their payments and requirements. Their various projects and demands cannot be fulfilled for paucity of funds. The traditional or incremental budgeting practice makes it impossible to rationalise expenditure, proper staffing pattern and allocation of funds and works. But by implementing ZBB technique all these problems can be solved to a considerable extent.

The Concept

Zero Base Budgeting is an operating, planning and budgeting process of more efficient use of limited resources in the pursuit of specified goals. The goal with any planning and budgeting process is to identify the output desired and the input resources required obtain it. This need not involve a reduction of penditure rather an increase of it might be the al native to the attainment of the desired goal.

The essence of Zero Base Budgeting is simply t an agency makes no reference to the level of previ appropriations in defence of its budget request. I a technique which complements and links the exist planning, budgeting and review process. It identi an alternative and efficient method of utilising limi resources in the effective attainment of objectives. is a flexible management approach which provide credible rationale for reallocating resources by foc sing on the systematic review and justification of funding and performance levels of current programn and activities.

Keeping this in view an attempt has been made draft a framework of action plan to introduce Zc Base Budgeting in university administration by und taking a case study of Amravati Universi Amarvati (M.S.).

Step 1—Defining Objectives

The university being an autonomous organisatic its structure demands that the objectives and missic be decided by the top or apex body, viz, Execut Council. The process of determining key results bei solely under the Executive Council it should deci the long term strategic objectives as well as res oriented short term objectives considering the requi ments, targets and other external factors affecting t University functioning. (Figure 1).

Step 2—Departmental Objectives and Missions

The University is basically an educational instit tion; naturally its focal point of activity is promoti educational and academic services. Hence the acad mic section becomes the major department. But th University being newly established one, there is a ope for development and establishment activities. e more attention goes to development section. efore long term objectives of all the departments d be decided by heads of the concerned depart- s and the top authorities in university jointly.

---

*Department of Business Administration and Management, Amravati University, Amravati.

he key results be decided by the authorities of niversity by deciding periodical targets. This be a short term objective in terms of manpower, , money and activities. There should be a proper dination for the key results to be achieved by the ersity and all the departments. For this purpose ultimate and short term objectives should be ly defined for each department.

3—Decision Units

The concept of decision unit can be applied in avati University as the process of departmenta- is well defined and designed, e.g, General Admi- ration Department, Academic Department, etc. ile implementing the idea of decision units, it must nentioned here that the every department acts as rt of the integral and continuous process of uni- sity administration. Therefore the decisions of the artment should always be in line with the main am. Hence the decisions should be classified as pendent and inter-dependent decisions. (Figure 2). Independent decisions are decisions which are en by the Head of the Department/decision autho- for the internal management of the Department do not affect any external activity, or functioning wo or more departments.

Allocation of responsibility and authority of ision should be done either by top authorities or Head of the Department in case of decisions affect- inter-department activities, affecting mainstream activities, and affecting a specific financial unit. In e of key matters it should be the responsibility of ad of Department or any competent authority, ich university administration deems fit. In case of tters related to internal management of the depart- nt or of routine nature the Head of the Depart- nt may use his discretion. The norms and criteria deciding rights and extent of assigning delegatory wers to the subordinates should be well defined and cided by top authorities.

ep 4—Classification of Activities

The main object of University administration is to velop the educational services and make them ailable to all those who demand it. Hence educational excellence is the main objective of university administration. Considering this, 'Academic Section' and 'Examination Section' are the main activity centres, whereas General Administration, stores and Engineering are the supporting activity centres to implement the plans and policies of the main activity centres.

Step 5—Restructuring of Activities

Amravati University being newly established, the classification and allocation of activities is well defined. But still considering cost trimming as an objective the Head of Department and Superintendent in consultation with the Registrar can redesign and classify the functioning of their department so as to avoid any waste of stationery, manpower, and other materials.

Allocation of activities can also be done in such a way as to save manpower by avoiding duplication of jobs, or by making proper classification of activities so that absence or non-availability of one of the staff members need not make others idle.

(a) Ordering of Activities

It should be used for continuous and flexible activities, especially within the department so that the priority of activities can be changed, as per its requirements such as some activities are seasonal or important in a specific time period or some activities have heavy work load in a particular situation/month. Staffing pattern and allocation of duties can be done accordingly to save time.

(b) Elimination of Activities

University administration being a continuous process, and especially when the university is understaffed, elimination process is not much applicable. But the concept can be brought into play to a certain extent in the following way. As stated above, there are certain functions and activities which are having heavy rush in a specific period and then they dry up. Hence the persons employed on such jobs can be conveniently transferred to other jobs in slack periods. It will be the responsibility of the Head of Department/Registrar to decide whether the particular activity has faded away or not and whether that person can be transferred or not.

(c) Merging of Activities

As stated above some activities can be eliminated in case of slack period. Similarly activities with low functional burden can be merged into a similar function and a person can be given these two jobs, and thus 'work activity area' can be enhanced. This function will also be decided by Head of Department.

Step 6—Alternative Methods of Performance

As university administration is bound by standard code, it is not possible to apply various alternative methods in practice so far as regular administrative practices are concerned. But wherever financing of various activities is concerned, the alternatives are possible end they can be implemented in following manner :

(1) Urgency, (2) Total requirements, (3) Methods of funding, (4) Substitute methods of performance, (5) Availability of funds, (6) Alternative models/techniques available, (7) Postponement of decision, and (8) Cost benefit analysis.

Step 7—Decision Package

Formulation of decision package involves all matters involving cost, funds and application of resources. Hence it is necessarily related to all matters where finance and funds are involved. Once the overall requirements of university, and all the requirements of all the other departments is considered, a master decision package can be formulated.

To formulate an individual decision package, the Head of Department can consult the Finance Section and other concerned so as to find various alternatives/substitutes involving different cost estimates and rank them. Here the idea of decision free can be applied. The authorities may choose any of the alternative as they feel fit considering its cost, utility and any other criteria.

Step 8—Minimum Funding Level or Zero Funding Level

The short term objectives of all the departments should be based on targets fixed in advance. The targets should be quantitative and be fixed by top authorities. University being a service institute, fixation of targets should be made by applying such criteria as is applicable to service organisation. Hence zero level funding can be made by applying a presumption that the department is going to offer only 1 unit of service, or the department is not to offer any service, hence it needs no funds. For every service/activity offered by the department or proposed to be offered it will be the Head of Department who justify the rationality behind it. Similarly every partment has certain minimum and basic functi which it has to perform once its existence is accept hence the minimum amount of funds to perform s functions must be treated as minimum funding leve

(a) Formulation of Incremental Packages

Once the best alternative/model/way to perf an activity/way is selected, the Head of the Depa ment can decide how the funds allotted be use stepwise process. That is, it may decide whether whole amount be spent in one go or it may be sp in instalments. After deciding the various alternati the Head of Department may rank them in the or of importance; with this ranking he can arranget expenses on each activity and also determine department.

(b) Mutually Exclusive Decision Package

Those decision packages which are independ and do not affect functioning of other departme and are at the complete discretion of the Head Department can be termed as mutually exclusive d sion packages.

Thus each department can submit its propos budgets considering the key results/targets expec from it in which the justification of funds and act ties will be properly made. The above mentio procedure will be applied by all the departments, thus individual budgets of each department will formulated. These then may be merged into a fina master budget. While preparing the master bud the top authorities may reshuffle all the decision p kages received from each department and again re range them in the order of priority or urgency sc to allocate funds and make a most efficient use resources.

Step 9—Final Ranking for Master Budget

The criteria of final ranking may be based following grounds :

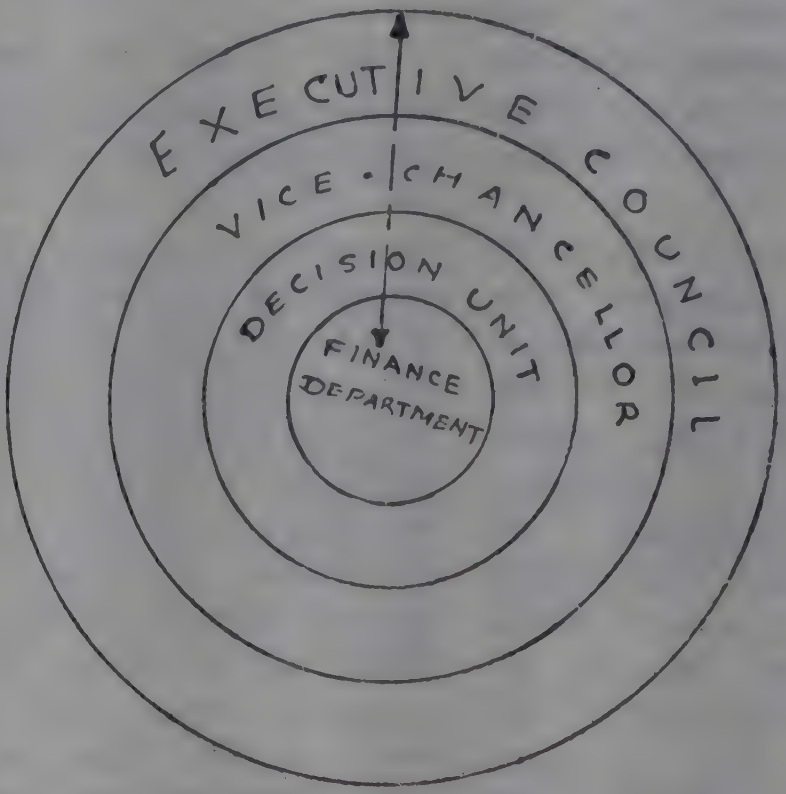
(1) Can be the package postponed ?
(2) Can it be classified into two or more steps
(3) Should all the expenses be made in one i stalment or it can be divided into two or m stages ?
(4) The extent of availability of funds.

(5) The ultimate target for the period.

(6) The priority sectors and secondary activities.

A cut off line may be decided for every department to limit the grant of funds or allocation of funds so that all the departments may get a minimum funding level to carry on the basic activities. ☐

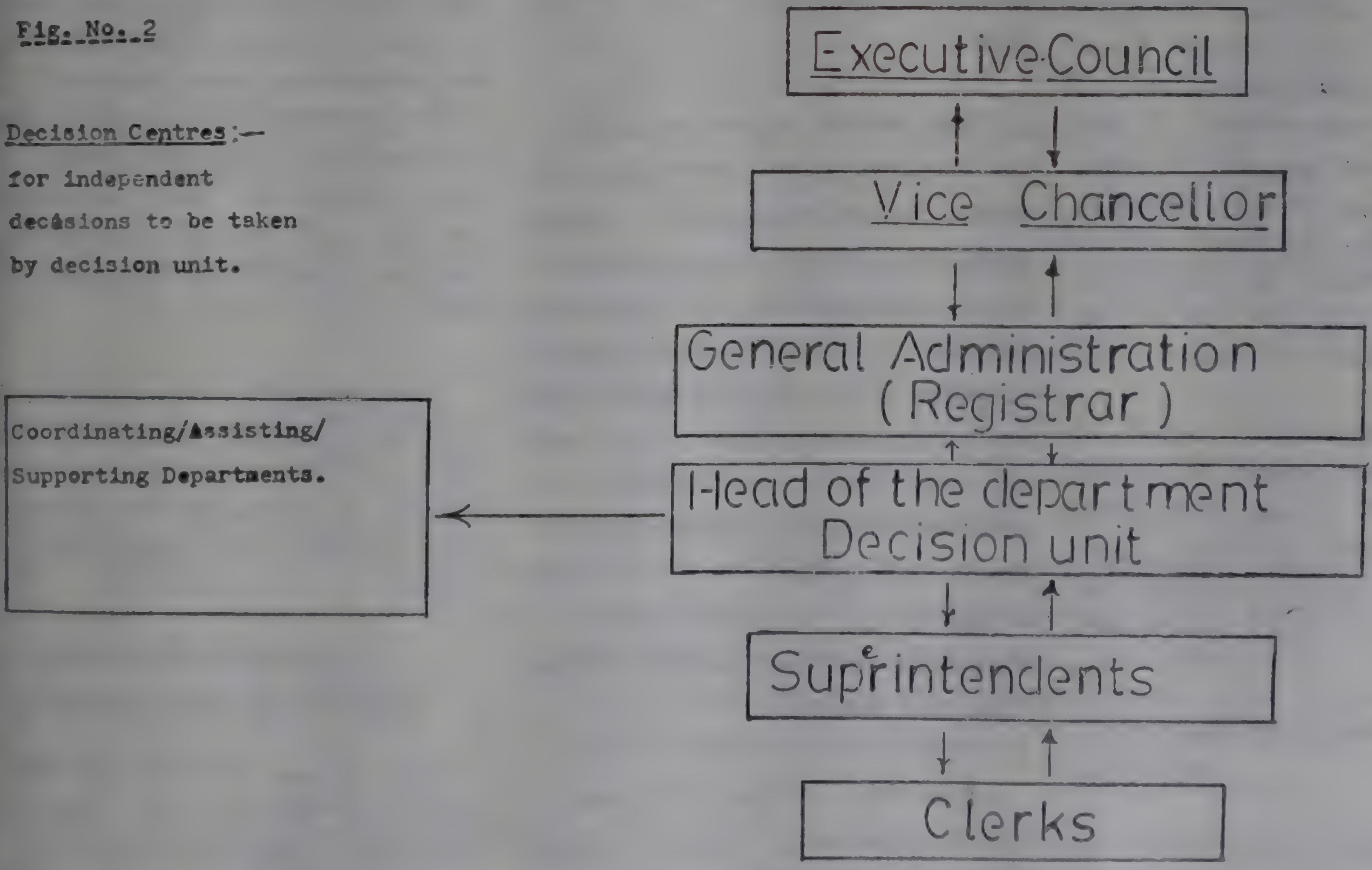
Fig. No. 1 ' Decision Making Process '


EXECUTIVE COUNCIL
VICE-CHANCELLOR
DECISION UNIT
FINANCE DEPARTMENT

Finance Department:- Being the nucleus of all decisions all the decisions are to be okayed by the finance deptt. But they should be got approved by Executive Council and Hon'able V.C.

Fig. No. 2

Decision Centres :—
for independent
decisions to be taken
by decision unit.


Executive Council
Vice Chancellor
General Administration (Registrar)
Head of the department Decision unit
Superintendents
Clerks
Coordinating/Assisting/Supporting Departments.

Training Programmes for University Administrators

The Centre for Work Study in Educational Administration of the Panjab University proposes to organise various training programmes for the officers and officials of universities and other educational institutions in India during the financial year 1988-89.

The programmes include (1) Management of Diciplinary Proceedings; (2) Computers in University Administration; (3) Records Management and Filing System; (4) Management of Accounts; (5) Inventory Management and Control; (6) General Management Development Programme for Superintendents/Section Officers; (7) Forms Design and Control; (8) Refresher Course for Assistants; (9) Writing Skills; (10) Innovative Approaches to Productivity Improvement in University Administration (for Registrars, Controller of Exams., and other Officers of the rank of Deputy Registrar); (11) Managing Examinations: Administrative Support; (12) 6-week Basic Course in Administrative Analysis and Improvement (Work Study/Management Services); (13) 13-week Advanced Course in Administrative Analysis and Improvement (Work Study/Management Services); and (14) Management of "Mass" in Hostels and Guest Houses.

Further details with regard to duration of the course, fee, etc. may he had from Shri Shital Parkash, Honorary Director, Centre for Work Study in Educational Administration, Panjab University, Chandigarh.

Studying Biological Rhythms

The Government of India has established a human isolation facility for study of biological rhythm at the Madurai Kamaraj University, Madurai. This 'National Facility' of the Ministry of Science & Technology, is a component of the 'Unit of Neurobiology & Mechanisms of Behaviour'.

This is the only facility of its kind in India and the sixth in the world (other such work and facilities are in the USA, UK, FRG, Switzerland and Japan). The facility consists of (1) comfortable, furnished living room with bath, kitchenette & toilet; (2) automatic body functions recording 'Solicorder' with Apple Ile PC; (3) 20 channel Esterline Angus Event Recorder A 620x; (4) ducted air-cooling. Human subjects spend 3 weeks—or more inside and are given all facilities excepting wrist watches, clocks, radios or TV. They are shielded from all 24 hour 'social' cues from the outside world.

Dr. G. Marimuthu, the first human subject entered the facility on Dec. 11, 1987 for a 3-week period.

The human circadian rhythms studies have great immediate relevance in preventive and general medicine, pharmacology, immunology, aeronautics, astronautics, psychiatry, military, navy, animal & plant breeding, etc. Much new knowledge of significance and vast intrinsic interest is expected to be generated from the results of experiments being performed by the scientists of the Department of Animal Behaviour in this unique 'isolation facility'.

Prof. M.K. Chandrashekaran is the Programme Coordinator of the Unit and the facility.

Research Methodology for Kannada Studies

The Kannada Department of the Bombay University recently organised a Seminar on Research Methodolgy for Kannada Studies, in collaboration with the Mangalore University's Kannada Department. The objective of the Seminar was to raise the level of research in Kannada Studies and also to introduce new devices in research methodology to the Ph.D. and M. Phil students.

Dr. R.S. Mugali, noted literary scholar, inaugurated the Seminar. He stressed the need for incessant and painstaking efforts in any research undertaking.

The following topics were discussed at the six sessions of the Seminar: New themes for Kannada research; Untapped resources of historical documents available abroad; Computer application to literary and historical research; Role of bibliographies and bibliographic research; Standardisation of Kannada terms in research methodology and of the symbols used in research writing; and Need for acquaintance of other disciplines such as anthropology, psychology, religion, architectural engineering, etc.

The Seminar was attended by 110 participants that included, among others, Senior academic and Heads of Kannada Departments from 14 universities from all over India.

Regional Workshop on Environmental Education

The Centre for Biology Education of the Madurai Kamaraj University recently organised a workshop on Environmental Edu-tion for training resource per-ns. Sponsored by the Centre for nvironmental Education at hmedabad, this forms part of the ationwide teacher training programmes under the National nvironmental Awareness Campaign. About 100 participants ttended the workshop.

The workshop was inaugurated y Dr. A. Gnanam, Vice-Chancellor, Bharathidasan University. In his ddress he stressed the need for a olistic approach towards environment and professional training. Dr. S. Krishnaswamy, Vice-Chancellor, Madurai Kamaraj University, who presided, spoke on the need for evolving simple and effective techniques for Environmental Education.

In the eight technical sessions various technologies that could be adopted for environmental education were introduced to the participants. Besides, they learnt methods like on-the-spot-studies, environmental camps, environmental games, and environmental experiments. An evaluation of the technical sessions was also made.

A slide-show-cum-lecture and an exhibition on Environmental Education was also arranged on the occasion.

Kannada Language Course at Gujarat Vidyapith

Shri Y.N. Nanjundiah, Member Secretary, Gujarat Water Resources Development & Sewage Board recently inaugurated the Kannada Certificate course in Gujarat Vidyapith. Speaking on the occasion he urged the Gujaratis to learn Kannada so that they could speak in Karnataka when occasion arises. Prof. Ramlal Parikh, Vice-Chancellor, who presided, said that the purpose of the Language Centre is to strengthen National Integration by laying emphasis on our composite culture as expressed and preserved in our regional languages and literature respectively. The medium of instruction is therefore Hindi. Later, courses on Kannada literature through the medium of Kannada language will also be provided.

Developing Interview Facing Skill

A two-day training programme on Developing Interview Facing Skill for the students of the University was organised by the Department of Education, Madurai Kamaraj University. About 40 students attended the programme. Dr. R. Venkataratnam of the Dept. of Sociology inaugurated the programme.

There were lecture on Personality Assessment, Acquiring Self-confidence, preparing for the interview, etc. Besides a lecture-cum-demonstration in oral communication was given. Two Mock Interviews were conducted. Video cassettes on oral communication skills like greeting, introducing, asking permission, offering things, expressing likes and dislikes, etc. were also shown.

We Congratulate . . . .

Dr. M.L. Shahare who has been appointed as Vice-Chancellor of the Awadhesh Pratap Singh University, Rewa.

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Request for prospectus and application form accompanied by a crossed Indian Postal Order for Rs. 10/- drawn in favour of the Secretary, Association of Indian Universities and a self-addressed stamped envelope (Rs. 2/-) should be sent to the Project Director (Exams), Association of Indian Universities, 16 Kotla Marg, New Delhi 110002. Last date for receipt of application is **15th** March for non-sponsored and **16th March** 1988 for sponsored candidates.

News from Agril. Varsities

Paddy Transplanter

The prototype of a power and manually operated paddy transplanter has been developed by the Farm Implements and Machinery Unit, a wing of the Andhra Pradesh Agricultural University (APAU).

A boon to the farmers, the transplanter which can plant paddy seedlings is cost effective in operation, saves labour costs, time and provides equal spacing for the plants. The power operated transplanter, a seven row machine can plant two to three acres of paddy seedlings per day with the help of three persons. The machine saves about Rs. 350 per hectare in transplanting charges. It can be used for both conventional and mat type of nurseries. The machine costs about Rs. 5,000 each and the APAU is planning to manufacture 20 such ones for research purpose.

For the manually operated transplanter, 25 to 30 days old nursery was best suited and it can plant seedlings just by towing forward. Four persons were required to operate the machine and help in planting operation. The machine saves about Rs. 200 in labour cost per hectare. The transplanter costs half the price of power machine.

New Layer Released

The Punjab Agricultural University has released a new egg-type stock, "Satluj Layer" for commercial production. This stock has the annual production potential of 255-265 eggs (Hen-day basis) with an average egg weight of 54-56g. The age at sexual maturity is 160 days whereby peak production is at 28-30 weeks. Peak production touches 92 per cent and egg production remains above 80 per cent for more than 20 weeks. The laying house mortality is less than 1 per cent per month. The performance of the stocks at various RSLT throughout the country over years highlights the adaptability of these stocks to varied agro-climatic conditions.

This pioneer work on breeding egg-type stocks has been accomplished under the guidance of Dr. Dalbir Singh Dev, Dean, College of Agriculture of the PAU. It is claimed that since the country has been depending on the supply of Parents/Grand parents from the developed countries like U.S.A., U.K. and Canada, the release of such a promising stock is a major step towards self-sufficiency in egg production. This will save a considerable amount of foreign exchange.

All India Farmers' Fair

The C.S. Azad University of Agriculture and Technology, Kanpur will host an all-India Farmer's Fair and agricultural exhibition from February 26 to 28 at its Kanpur campus. The objective of the annual 'varsity fair', popularly known as 'Kisan Mela' is to provide on opportunity to the farmers to know the latest achievements in agricultural research and animal husbandry and also to find a way out of the constraints in transfer of technology.

Sports News

Punjabi and Calicut Varsities Emerge Champions

The host, Punjabi University, Patiala retained the first position in the men's section of the 48th All India Inter-University Athletic Meet which concluded at Patiala recently. Panjab University, Chandigarh and Guru Nanak Dev University, Amritsar finished 2nd and 3rd respectively.

In the women's section, Calicut University maintained their stronghold for the 4th year in succession with a tally of 57 points. The second and third positions went to Nagpur and Gandhiji Universities respectively.

Punjabi University's Balkar Singh was adjudged the best athlete in men's section while Gurmeet Kaur of Guru Nanak Dev University bagged the top honour in the women's section.

As many as 7 new records were created during the Meet. In the 5000 Metres and 10000 Metres race for women which were introduced in the Inter-University Athletic Meet from the current year, new records were established by A. Bhoyar and A. Rotey, both from Nagpur University. Gurmeet Kaur of Guru Nanak Dev University, mritsar created 2 new records in he Shot Put and Javelin Throw vents in the women's section. Harpreet Kaur of Punjabi University, Patiala created a new record n the Discus Throw event. In the Men's section, 2 new records were created; one by Sadasnan M.P.. of Kerala University in Broad Jump and the other by Mohan Lal of Punjabi University in 20 K. Metres Walking event.

Delhi Varsity Claims Rohinton Baria Trophy

Delhi University has won the Rohinton Baria Trophy. In the finals of the Inter-University Cricket Championship which concluded at Madras in the last week of January, 1988, Delhi defeated Bangalore University with a margin of 511 runs. The scores were : Delhi 172 and 734 runs, Bangalore 103 and 292 runs.

News from UGC

INSAT-1B Programme of UGC

Between 15th February to 29th February, 1988 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is of one hour duration every day from 12.45 p.m. to 1.45 p.m. (Repeated from 4 p.m. to 5 p.m.) and will be available on the TV Network throughout the country. For the viewers in Delhi and surrounding areas these programmes can be seen on the second channel.

15.2.88

"Optical Alignment-III"
"Let There Be Light"

16.2.88

"Logic of Distance Education"
"Educational Technology"
"Concepts of Sociology"

17.2.88

"Arid Zone Ecology Phase II Mouse, But Not Mickey"
"With Net And Trap"

18.2.88

"Rural Water Supply"
"Modern Irrigation Ssytem"
"Soil Tillage In Dryland Farming"

19.2.88

"The Universe-I"
"Journey Through The Solar System-Uranus, Neptune, Pluto And Beyond"

20.2.88

"Demonstration On Indian Music-I Alaapana"
"Language Of Music"

21.2.8

No Telecast

22.2.88

"Unification Of Physics With Life"
"Scientific Knowledge"
"New Ideas In Science & Technology"

23.2.88

"Correspondence Courses A Firt Hand Experience"
"University of Poona—Solving Educational Problems"
"Note Taking & Note Making"

24.2.88

"Arid Zone Ecology Phase II Fruits From Dryland"
"How To Harvest Twice"

25.2.88

"Rural Sanitation"
"Prescription For Health"
"War On Rats"

26.2.88

"Rain Making"
"Remote Sensing: Application & Techniques"
"Hurricane Below"

27.2.88

"Demonstration On Indian Music-II"
"Folk Instruments Of India"

28.2.88

No Telecast

29.2.88

"Scientific Methods"
"Introduction To Polytechnic Workshop"
"University Round Up"

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Inter-University National Youth Festival—1988

A Report

A five-day Inter-University National Youth Festival (IUNYFEST) was organised by Amravati University in collaboration with the Punjabrao Krishi Vidyapith (PKV) at Akola from 25-29. January, 1988. Sponsored by the Association of Indian Universities (AIU), the Festival was attended by 908 students and officials from 39 universities all over the country. The participants were selected from the four zonal youth festivals held earlier at Aligarh Muslim University, Aligarh; Bombay University, Bombay; Manipur University, Imphal; and Madurai Kamaraj University, Madurai. Patna University was adjudged as the overall champion while Amravati University was declared as the runners up.

Prof. Ram Meghe, Minister for Education, Maharashtra, inaugurated the festival by lighting the traditional lamp to the accompaniment of a Prayer. The Choir of the Amravati University presented the welcome song. All the participants were then administered a pledge by Dr. K G. Deshmukh. In his welcome speech, Dr. Deshmukh recalled how the first Inter University National Youth Festival (NAMYFEST) was launched in 1985. He exhorted the participants to make the National Youth Festival a grand success.

Shri Gulam Nabi Azad, M.P. was the special guest of honour on the occasion. In his speech, he called upon the youth to be self reliant rather than dependent on Govt. for solving the problems before the nation. Such youth festivals help bring about coordination and mutual understanding among the young people from different regions of the country, he add.

Delivering the inaugural address Prof. Ram Meghe expressed the hope that Youth Festival of such a magnitude will be helpful in carrying knowledge to the rural India and keep pace with other developing countries. It is very effective forum for exchanging of ideas among the young people who are the citizen of tomorrows' resurgent India, he said.

Shri Vasantraoji Dhotre, Minister of State for Cooperation, Maharashtra, presided over the function, and expressed great happiness and pride over Amravati University and the Punjabrao Krishi Vidyapith, hosting the great natural event jointly. For him the Youth Festival was a rare event of great national importance.

Freedom fighters and other elite of the area graced the occasion.

Dr. V.N. Shukla, Vice Chancellor, Punjabrao Krishi Vidyapith proposed a vote of thanks. The inaugural function came to a close with the singing of PASAYADAN, by Manisha Deshpande and national anthem played by the police band.

January 26, being the Republic Day, was celebrated with the participation of students, officials and 150 Freedom Fighters invited for the occasion. Full throated shouts of 'Long Live the Indian Republic', echoed in the skies, as the tricolour National Flag went up.

The cultural events began at the Bal Gandharva Rang Manch, with Classical Instrumental Solo (percussion) and Classical Vocal Sc Performance on Tabla by Suc Pande of Patna University d spontaneous applause from audience. This event was foll ed by the Classical Vocal (Sc with Amardeep Singh (Guru Na Dev University) singing 'Ra Todi'. Other participants we Vandana Shirodkar (SNDT Gujri Todi, Maitrayai Das (G hati)—Shuddha Kalyan, I. Sha (Andhra)—Kalyan, and Shri Vi Deshpande (Nagpur)—Bilas To Performance of Vilas Deshpan and Vandana Shirodkar was higl appreciated by the audience.

At the same time, when Bal Gandharva Rang Manch w overflowing with melody, anotl band of creative artists was enga ed in the Raja Ravi Verma Hall, displaying their skill and talent "On the Spot Painting". T chosen theme, of course, w National Integration.

The Quiz competition was org nised at Dr. Thakre Auditoriu Out of the seven teams which to part, four teams of Kerala, Agr Nagpur and Bhopal universiti qualified for the finals as a resu of a written test. These four tean comprising three participants eac competed for the final ranking. Th Bhopal University team comprisir the Rajiv Sarkar, Ganesh Naya and Manish Manke scored th highest.

At the Mime competitio silence proved more eloquent tha speech, and the artists strove tirel essly to stretch their histrioni abilities to perfection. Sparklin performances put up by the parti cipants of the universities of Jamm (Panchhi Ek Daal Ke); Aligar (Unity : a machine); Bharthidasa (National Unity); Rani Durgava (Ekta Saphalta Ki Kunji); an Nagpur (National Integration deserve special mention. The uni versities of Rabindra Bharati (Ma for Man's sake—a message of lov r mankind), Annamalai (Grow ore trees and protect the ecology d natural wealth of our mother- nd), and Patna (roti—depicting e sufferings of the starving people) mphasised the same theme with a ider connotation. The participants f the Rabindra Bharati, Bharati- asan and Patna Universities moved he audience to a rare emotional eight with their acting skill. The ligarh Muslim University team, resented the concept of unity in he most novel manner i.e. in the orm of a machine. The Nagpur University presented the idol of Bharat Mata an unmoving statue, but melting into tears of agony to see the infighting of her children.

The Collage participants assembled in the Raja Ravi Verma Hall. Collage is a style in the art of drawing a patch work using piece of colour paper, cloth, etc. The participants in this event were Prasantjit Sengupta (Rabindra Bharati), Khushwinder Singh Adhikari (Rajasthan), Shailesh Sawant (Bombay), Suman Gupta (Jammu), Iqbal Ahmed (Aligarh Muslim University), N. Murli Dharan (Madras), and Subodh Gupta (Patna). To see these artists at work was to see the sure hand of the master artists at work.

The most animating event of the day was the One Act play conducted at the Dr. Thakre Auditorium. The University of Manipur staged a Manipuri dramatic adaptation of Rabindra Nath Tagore's short story 'Hungry Stones depicting the miseries, Mother India passed through, in course of the struggle for freedom, which brought about social awakening. The uniqueness of this performance lay in the Manipuri touch lent to a Bengali story and the theme brought home to the audience through superb acting—language being no bar.

Shivaji University presented a Marathi Play 'Andharachi Bhitee', (Fright of darkness) written by Prof. Arvind Vishwanath Kulkarni, a local play-wright. It dealt with the problems of daily-life like unemployment, hunger, poverty and exploitation by the political leaders, etc. which made the common man feel insecure. The play offered a hope of resurrection even in the darkness. Maharshi Dayanand University, Rohtak presented 'Is prashna ka Uttar Do' (Answer this Question) a play depicting how the noble sentiments of sacrifice, patriotism, etc. prevailing in the pre-independence era, gave place to communalism, casteism and social evils such as bride burning, corruption, political exploitation, etc. The one Act Play 'Manav Mana Manthan' (the churning of human mind) by Jodhpur University showed how all efforts by foreign forces to distrupt the national unity are foiled when all the people of the country stand up as one man.

'Bhanwar' (whirlpool) by the Aligarh Muslim University, presented a veritable whirlpool of heterogenuous characters of diverse temperament but lunatics all...concerned deeply about the welfare of the country more than the so-called wise men. It is these inhabitants of the lunatic asylum that bring us reminiscences of the past and hope for the future. A very eloquent satire indeed on the people who only speak loudly about the welfare of the country.

'Koleyadolu Bale' (Maiden the sacrifice) by Mysore University was a dramatization of a folk tale of yesteryears which is a reality of today. Our education, our civilization and culture are all hollow when a woman goes a 'Sati' or a daughter in-law is sacrificed to a Goddess.

The Gauhati University's 'Brittar Bhitarat' (Inside the circle) was a farce, ridiculing different types of acting and was adjudged the best play.

The Bal Gandharva Ranga Manch was packed to capacity for the event of Group Dance/Tribal Dance. The universities that participated were Annamalai, Manipur, (Laibura), Kurukshetra (Fodia), Rajasthan (Chirmi), Patna (Holi), Bharthidasan (Kargham Nritya), Indira Kala Sangeet Vishwavidyalaya, (Bojoli), and Dayalbagh Edu cational Institute, (Holi). The last three drew prolonged applause. Folk Dance rendered by Dayalbagh Educational Institute, Agra was adjudged the best while Kurukshetra University bagged the second prize.

The Group Songs were presented at the Bal Gandharva Ranga Manch. All songs showed a rare combination of word and meaning, and melody, with which the whole atmosphere was charged. It touched the hearts, that swayed now to the tune, then to the rhythm, but always to the noble sentiment of patriotism and national integration. Indeed music is such an art which overrides all barriers of caste, creed, language, religion, etc., and welds the hearts together to raise before the mind's eye the image of Bharat Mata! This was what the Group Song event achieved when the young men and women poured out their soul in unforgetable melody. They belonged to the universities of SNDT Women's, Annamalai, Patna, Bhopal, Dayalbagh Educational Institute, Haryana Agricultural and Bharathidasan. The Group Song presented by SNDT Women's University was declared the best.

The Classical Dance event was organised at the Dr. Thakre Auditorium. It were indeed riots of colour as young artists presented Kathak, Manipuri, Bharatnatyam and Mohiniattam. Andhra University bagged the first prize in this event. Skit event was also held at Dr. Thakre Auditorium. The following items were presented: 'Kutte' written by Shrikant (Patna), 'Ekach Maleche Mani' by Kishore Morey (Amravati) 'Sati 'Pratha ke Virodh' (Marathwada), 'Doctor No' (Bharathiar), 'Panchhi kya Kahta hai?' (Agra), 'Soul of a National Poet' (Gandhigram), 'Nai Kiran' (Aligarh), and 'The Story of Heaven (Rabindra Bharati)

Another event was Group Songs (Western) held at the Bal Gandharva Rang Manch. The audience was enthralled by the Western music provided by Tata Institute of Social Sciences, Bombay and the universities of Pondicherry, Goa, Jammu, Kurukshetra, Manipur and Bharathidasan. The Bharathidasan was adjudged the best.

Smt. Pratibha Patil, Deputy Chairperson of Rajya Sabha, was the Chief Guest at the valedictory function. She eulogized the organizers for holding Inter-University National Youth Festival at such a gigantic scale. Shri P.K. Mishra, IAS, Director, Youth Affairs & Sports, Government of India con gratulated the participants an reminded the student community their responsibilities. Dr. K.C Deshmukh, Vice Chancello Amravati University thanked th participants for providing Akola wonderful cultural feast. A Colou ful Cultural Evening marked th conclusion of the Youth Festiva Folk Dances, Group Songs, Ligh Vocal and Instrumental Music wer a special treat of the evening.

Inter-University Youth Festival—1988

RESULTS

1. MUSIC

(a) **Classical Vocal Solo**

1. Andhra University, Waltair
2. SNDT Women's University, Bombay
3. Guru Nanak Dev University, Amritsar

(b) **Classical Instrumental Solo (Non-Percussion)**

1. University of Mysore, Mysore
2. Patna University, Patna
3. University of Bombay (Bombay)

(c) **Classical Instrumental-Solo (Percussion)**

1. Patna University, Patna
2. University of Kerala, Trivandrum
3. University of Jammu, Jammu

(d) **Light Vocal (Indian)**

1. Amravati University, Amravati
2. University of Jammu, Jammu
3. University of Kerala, Trivandrum

(e) **Western Vocal Solo**

1. Pondicherry University, Pondicherry
2. Tata Institute of Social Sciences., Bomba
3. Manipur University, Imphal

(f) **Group Song (Indian)**

1. SNDT Women's University, Bombay
2. Bhopal University, Bhopal
3. Bharathidasan University, Tiruchirapalli

(g) **Group Song (Western)**

1. Bharathidasan University, Tiruchirapalli
2. Goa University, Panjim, Goa
3. Tata Institute of Social Sciences, Bombay

2. DANCE

(a) **Folk/Tribal Dance**

1. Dayalbagh Educational Institute, Agra
2. Kurukshetra University, Kurukshetra
3. Bharathidasan University, Tiruchirapalli

(b) **Classical Dance**

1. Andhra University, Waltair
2. Patna University, Patna
3. Manipur University, Imphal
&
Bhopal University, Bhopal

LITERARY EVENT

(a) **Quiz**

1. Bhopal University, Bhopal
2. Agra University, Agra
3. University of Kerala, Trivandrum

4. THEATRE

(a) **One Act Play**

1. Gauhati University, Gauhati
2. University of Mysore, Mysore
3. Manipur University, Imphal

(b) **Skits**

1. Amravati University, Akola
2. Rabindra Bharati University, Calcutta
3. Aligarh Muslim University, Aligarh

(c) **Mime**

1. Nagpur University, Nagpur
2. Aligarh Muslim University, Aligarh
3. Patna University, Patna

5. FINE ARTS

(a) **On the Spot Painting**

1. University of Mysore, Mysore
2. Aligarh Muslim University, Aligarh
3. Amravati University, Akola

(b) **Collage**

1. Rabindra Bharati University, Calcutta
2. University of Rajasthan, Jaipur
3. Patna University, Patna

(c) **Poster Making**

1. Patna University, Patna
2. Manipur University, Imphal
3. Marathwada University, Aurangabad

(d) **Clay Modelling**

1. Amravati University, Akola
2. Rabindra Bharathi University, Calcutta
3. University of Kerala, Trivandrum

(e) **Cartooning**

1. University of Mysore, Mysore
2. Amravati University, Akola
3. Patna University, Patna

OVERALL CHAMPIONSHIP : Patna University, Patna

RUNNERS-UP TROPHY : Amravati University, Akola

BSET IN ITEMS

1. Dance	Dayalbagh Educational Institute, Agra
2. Music	SNDT Women's University, Bombay
3. Theatre	Aligarh Muslim University, Aligarh
4. Fine Arts	Amravati University, Akola
5. Literary Activity	Bhopal University, Bhopal

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Pantnagar 263145 (District Nainital) U.P.

ADDENDUM

With reference to our Admission Notice published through the Columns of this Journal January 11 and February 1, 1988, this is to notify for information of all concerned that the minimum duration of the B.Sc. Ag. & A. H. programme offered at this University has been increased from 3 years to 4 years with effect from the academic session 1988-89. Accordingly, the maximum duration of this programme will now be 6 years. In respect of other academic programmes no change has been made.

O.S. Misra
REGISTRAR

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertations as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

PHYSICAL SCIENCES

Physics

1. Panda, Shreemayee. *Laser Plasma interaction.* Delhi. Dr. M.P. Srivastava.

2. Saxena, Kanchan. *Ferroelectric liquid crystals.* Delhi. Dr. Rajrup and Dr. Subhash Chandra.

Chemistry

1. Arora, Om Prakash. *Special studies on transition metal complexes with O-N-B containing ligands.* Delhi. Dr. N.K. Kaushik.

2. Jacob, N.E. *Physico-chemical properties of high silica zeolites.* Shivaji. Dr. P. Ratnasamy.

3. Jha, Lakhanjee. *Corrosion chemistry.* Delhi. Dr. Gurmeet Singh.

4. Mann, Satwinder Kumar. *Studies of some unconventional oil seed of Himachal Pradesh.* HP. Dr. C. S. Pande.

5. Parsuna, C.S.S. *Synthesis of biologically active compounds.* Shivaji. Dr. S.N. Kulkarni.

6. Sharma, Narendra Kumar. *Determination of some commercial organic pesticides.* HP. Dr. B.C. Verma.

7. Sharma, Neelam. *Determination of some thiocarbonyl compounds and studies on their analytical aspects.* HP. B.C. Verma.

BIOLOGICAL SCIENCES

Anthropology

1. Kaule, Shyamal. *An anthropogenetic study of Talipes equinovarus in Sagar District, M.P.* HS Gour. Dr. A.N. Sharma.

2. Maheshwari, Manikant. *Epidemiology of premature greying of hair.* HS Gour. Prof. P.K. Shrivastava.

3. Sarkar, Rupsilata. *Age change : The morphology of hand phalangeal and palmar creases.* HS Gour. Dr. R.S. Bali.

Botany

1. Thomas, Jasy. *Studies on the variation in morphology, cytology and host specificity of different populations of the burrowing nematode in South India,* Kerala. Dr. P.K. Koshy.

Medical Sciences

1. Rajendran, R. *Epidemiological, biochemical, immunological and ultra-structural studies on pre-malignant and malignant lesions of oral cavity.* Kerala. Dr. P.I. John and Dr. D.M. Vasudevan.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities.

PHYSICAL SCIENCES

Mathematics

1. Bandyopadhyay, Uttam Kumar. *Some problems of seismic waves in layered media.* ISM. Dr. A. Chattopadhyay.

2. Gopalsamy, S. *Mixed equilibrium hybrid finite element method for fourth order elliptic partial differential equations with variable coefficients.* IIT Delhi. Prof. B. Choudhary and Prof. P.K. Bhattacharyya.

3. Jain, Pragya. *Numerical methods for singular differential equations.* IIT Delhi. Prof. R.K. Jain and Prof. S.R.K. Iyengar.

4. Mishra, Purna Chandra. *The study of some two dimensional problems by complex variable methods.* Sambalpur. Dr. A.K. Das.

5. Subba Rao, G.V. *Translation complements of G-planes.* Osmania.

Physics

1. Rokde, Sadhana Vasant. *Development of lithium borate based glass system from solid electrolyte point of view.* Nagpur. Dr. (Miss) Kamal Singh.

2. Singh, Kamlesh Prasad. *Energetics of some complex ionic crystals.* Magadh.

3. Singh, Konsam Biren. *An investigation on the electronic transport properties of some thin metallic films.* Manipur. Dr. H. Nandakumar Sarma.

Chemistry

1. Dhar, Raj Kumar. *Kinetics and mechanisms of some oxidation reactions.* IIT Delhi. Dr. R. Varadarajan.

2. Ghosh, Jayanta Kumar. *Solid state thermal and photo chemical decomposition studies on fluoroperoxo and tetraperoxo complexes of transition elements.* IIT Delhi. Prof. G.V. Jere.

3. Ghosh, Mala Akhil Krishna. *Chelate polymers.* Nagpur. Dr. R.B. Kharat.

4. Janarthanam, M. *Binary and ternary complexes of dioxouranium (VI).* Anna.

5. Joshi, Yogendra Kanaiyalal. *Resinified ligands.* Baroda.

6. Kumar, Amal K. *Aryloxyacetic acids : Potential ligands for monomeric organotin carboxylates.* NBU.

7. Mehta, L.K. *Studies on heterocyclic compounds.* Saurashtra. Dr. (Mrs) H.H. Parekh.

8. Narkhede, Bhojraj Narayan. *Poly (vinyl alcohol) esters : Swelling by sorption.* Baroda.

9. Patel, Narahari. *A study on the catalytical behaviour of micellar systems.* Sambalpur. Dr. B.K. Sinha.

10. Poddar, Ranjan Kumar. *Formation and cleavage of cyclopropane ring systems and related studies.* NBU.

11. Rajeshwar, Dongara. *Physico-chemical characteristics of manganese chalcogenides and their activity for some model catalytic reactions.* IIT Delhi. Dr. L.D. Ahuja.

12. Rao, Pratima. *Physico-chemical studies on the organic complex of chromium peroxy-chromate.* Durgawati. Dr. C.V.P. Pillai.

13. Roda, K.P. *Studies on natural and synthetic drugs.* Saurashtra. Dr. (Mrs) H.H. Parekh.

14. Sachan, S. R. *Physico-chemical studies of liquid scintillators and their applications.* Baroda.

15. Swaminathan, Shankar. *Synthesis of biologically active molecules.* Baroda.

16. Venkateshwarlu, T. *The kinetics and analytical application of Hg (II) assisted formation of pentacyanonitro-sobenzeneferrate (II) and pentacyano 4-nitroso-N, N-dimethylanilineferrate (II) from hexacyanoferrate (II) and their equation.* Osmania.

17. Vijaya, Dasari. *New spectrophotometric methods for the determination of some pesticides.* Andhra.

18. Wali, Anil. *Some aspects of cycloaddition reactions, and A 13C NMR study of 1, 4-diaryl-1aza-1, 3-dienes.* IIT Delhi. Prof. R.P. Gandhi.

Earth Sciences

1. Sengupta, Bimal Jyoti. *Some mathematical study on geoelectrical methods.* ISM. Prof. B.B. Bhattacharya and Dr. B. Banerjee.

2. Tiwari, Krishna Chandra Onkarlal. *Hydrogeological framework of Heran River Basin, Gujarat State : A critical appraisal of its lithology structure and geomorphological features.* Baroda.

3. Varma, Dantuluri Deva. *Some aspects of texture, mineralogy and geo-chemistry of the Vamsadhara River sediments, East Coast of India.* Andhra.

4. Vastrad, Shantaveeraswamy Gavisiddayya. *Hydrogeological investigations of Gadag Schist Belt, Karnatak, India.* Karnatak. Dr. S.C. Puranik.

Engineering & Technology

1. Arora, Vijay Kumar. *Strength and deformational behaviour of joined rocks.* IIT Delhi. Prof. T. Ramamurthy.

2. Chatterjee, Biswapati. *The geometry of the 2 x 2 matt weave.* IIT Delhi. Prof. N.M. Swani and Dr. P.K. Banerjee.

3. Chinnaswamy, C. *Finite element analyses of gravity dam foundations with seams.* IIT Delhi. Dr. K.G. Sharma and Dr. A. Varadarajan.

4. Haldar, Ramsankar. *Studies on the modification of thermoplastic polyesters by blending with polycarbonate and polypropylene.* IIT Delhi. Dr. Ashok Misra and Dr. B.L. Deopura.

5. Linga Murthy, Kandukuri Sanyasa. *On some aspects of optimal real and reactive power dispatch for integrated power systems.* IIT Delhi. Prof. J. Nanda and Prof. D.P. Kothari.

6. Mitra, Debaprasad. *Studies on the effect of nucleating agents on the crystallisation behaviour of polyesters.* IIT Delhi. Dr. Ashok Misra.

7. Sarma, Kotikalapudi Vijaya Bhaskara. *Unbalance response and stability of symmetric and asymmetric rotors.* IIT Delhi. Prof. J.S. Rao and Dr. K. Gupta.

8. Saroop, Upender Krishen. *Studies on the modification of poly (vinyl chloride).* IIT Delhi. Dr. K.K. Sharma and Dr. Ashok Misra.

9. Sinha, Bijan Bihari. *Low temperature oxidation of coal.* ISM. Dr. G.V. Reddy.

10. Srivastava, Suresh Chandra. *On some aspects of load flow and optimal load flow of inter connected power systems.* IIT Delhi. Prof. D.P. Kothari and Prof. J. Nanda.

11. Tomar, Anil Kumar. *Studies on trimethoxy silane modified polymers.* IIT Delhi. Prof. (Mrs.) I.K. Verma and Dr. R.C. Anand.

INDIAN INSTITUTE OF TECHNOLOGY
MADRAS.

Advertisement No. II TM/R/1/88

IIT Madras is a higher technological Institute having ongoing collaborative programmes with leading Technical Universities of West Germany, France, USA and Australia. Apart from its regular academic programmes at Undergraduate, Master's and Doctoral levels, the Institute is actively engaged in Sponsored Research & Industrial Consultancy. As a central facility, the Institute has an IBM 370/155 and IPL 4443 main frame computing systems to cater to the needs of the various departments/centres/sections of the Institute. A new computing facility consisting of a Siemens 7580-E time sharing system with 16 mb of memory and 80 terminals has been installed and commissioned recently in a specially designed building.

Applications are invited for the following Faculty/Scientific positions in various Departments of the Institute in the pay scales noted. The scales of pay given are likely to be revised. The figures given in parentheses against each category are the approximate gross emoluments including HRA at the minimum of the present scale of pay.

1.	**Professor** Rs. 1500-60-1800-100-2000-125/2-2500	[3825.50]
2.	**Assistant Professor** Rs. 1200-50-1300-60-1900	[3390.50]
3.	**Senior Scientific Officer Grade-I** Rs. 1200-50-1300-60-1900	[3390.50]
4.	**Lecturer** Rs. 700-40-1100-50-1600	[2242.95]
5.	**Senior Scientific Officer Grade-II** Rs. 700-40-1100-50-1600	[2242.95]

The posts of Lecturer and Senior Scientific Officer Gr. II are reserved for SC/ST candidates. If suitable candidates are not available the posts will be treated as dereserved.

Posts are permanent or likely to become permanent. Besides pay, posts carry allowances and retirement benefits as per Institute rules. Higher initial pay is admissible to exceptionally qualified and deserving candidates. Candidates called for interview wil be paid first class railway fare from the place of their duty/residence to Madras and back by the shortest route as per Institute rules.

Qualifications & Experience

Professor

1. A good academic record with Bachelor's or Master's degree in the relevant area. A Doctorate degree in any of the specialisations mentioned or closely related area is **essential**.
2. 10 years experience in the field of specialisation prescribed, of which at least five years should be in teaching and/or research [for Engineering, Humanities & Social Science Departments/Centres].

   10 years experience in the field of specialisation prescribed, of which atleast five years should be in teaching at postgraduate level [for Science Departments/Centres].
3. Research work of good quality published in journals of repute.
4. Experience in guiding research.

Assistant Professor

1. A good academic record with Bachelor's or Master's degree in the relevant area. A Doctorate degree in any of the specialisations mentioned closely related area is **essential**.
2. 5 years experience in the field of specialisation prescribed, of which at least 2 years should be in teaching and/or research [for Engineering, Humanities & Social Science Departments/Centres].

   5 years experience in the field of specialisation prescribed, of which atleast 2 years should be in teaching at postgraduate level.
3. Research work of good quality published in journals of repute.
4. Experience in guiding research.

ior Scientific Officer Grade-I

Bachelor's degree in Engineering/Master's degree in Science with 7 years relevant industrial/research experience.

OR

Master's degree in Engineering/Ph.D. with five years relevant industrial/research experience.

cturer

1. A good academic record with a Master's Degree in Engineering in the relevant area.

   OR

   Doctorate degree in Science or in Humanities & Social Sciences in the relevant area.
2. Two years industrial/research experience in the related fields.

Senior Scientific Officer GR. II

Bachelor's Degree in Engineering/Master's degree in Science in the relevant area with two years relevant industrial/research experience.

OR

Master's degree in Engineering/Ph.D.

Departments and Fields of Specialisation

1. Applied Mechanics

For Professor/Assistant Professor :
- Fluid Mechanics

2. Chemical Engineering

For Assistant Professor/Lecturer :
- Transfer Operations
- Process Control
- Chemical Reaction Engineering

3. Chemistry

For Professor
- Polymer Synthesis characterisation and application
- Organic Molecular Re-arrangements and Transformations,
- Organic Photochemistry
- Radio & Radiation Chemistry
- Surface Chemistry and Catalysis

4. Civil Engineering

For Professor :
- Structural Engineering

For Assistant Professor/Lecturer :
- Computational Geomechanics
- Building Acoustics, Ventilation and Construction Management.
- Hydrosystem Modelling

5. Computer Science & Engineering

For Professor/Assistant Professor/Sr. Scientific Officer I/Lecturer/Sr. Scientific Officer II:
- Any area in Computer Science

6. Electrical Engineering

For Professor :
- Analog Electronic Circuits
- Control System Theory
- Digital Systems
- Power Electronics & Drives

For Professor/Assistant Professor/Lecturer :
- Optical Communications & Signal Processing
- VLSI Design & Computer Engineering
- Communication Engineering
- Robotic and Power Electronics

For Assistant Professor/Lecturer :
- Television Engineering/Image Processing.

7. Humanities & Social Sciences

For Professor/Assistant Professor :
- Industrial Engineering Design Supporting System

For Assistant Professor/Lecturer :
- Applied Economics
- Personnel Management
- English Language Literature
- Managerial Economics
- Marketing

8. Mathematics

For Professor :
- Applied Probability
- Fluid Machanics & Microhydrodynamics

For Assistant Professor/Lect
- Analysis
- Algebra

9. Mechanical Engineering

For Professor :
- IC Engines
- Production Engineering

For Assistant Professor/Lecturer :
- Refrigeration & Airconditioning
- Design & Handling
- Turbomachines
- Production Engineering
- Machine Elements
- Machine Tools

10. **Metallurgical Engineering**

For Professor :
- Physical Metallurgy

For Assistant Professor :
- Material Science
- Metallurgical Thermodynamics
- Non-destructive Testing

11. **Materials Science Research Centre**

For Assistant Professor/Sr. Scientific Officer I :
- Material Science/Powder Matallurgy/Solid State Chemistry/Solid State Physics

12. **Ocean Engineering Centre**

For Professor :
- Soil Fluid Structure Interaction

13. **Physics**

For Professor :
- Diffusion Studies Solids
- Applied Optics

For Assistant Professor :
- Applied Optics
- X-Ray Crystallography
- Low Temperature Physics (with experience in the area of superconductivity desirable)

For Lecturer :
- Optical Physics and Laser Optics

14. **Regional Sophisticated Instrumentation Centre**

For Professor :
- Molecular Spectroscopy

General Information/Conditions/Instructions

(i) For all posts, where Postgraduate qualification is prescribed experience means experience gained after Master's degreee.

(ii) The prescribed qualifications are minimum and the mere fact that a candidate possesses the same will not entitle him/her for being called for interview.

(iii) The Institute reserves the right to restrict the number of candidates for interview to a reasonable limit on the basis of qualifications and experience higher than the minimum prescribed in the advertisement.

(iv) The Institute also reserves the right of reje ing any or all applications without assigni any reasons therefor.

For Application form, please address the REC STRAR, INDIAN INSTITUTE OF TECHNOLOG MADRAS 600 036 with a self-addressed stamp (Re. 1.00) envelope (26 cm x 11 cm). Applicants requested to indicate clearly the post and discipl for which they wish to be considered. Persons in service of Government establishments and Pul Sector Undertakings should apply through pro channel. Indian Nationals abroad may apply plain paper with full details of educational qualifi tions, research experience and names and addresses three referees from whom reference letters may obtained.

Completed applications with a crossed non-refu able current Indian Postal Order of the value Rs. 7.50 (Re. 1.90 for SC/ST candidates) draw favour of the Institute payable at IIT Madras P. should be sent to the Registrar of the Institute.

The last date for the receipt of completed appli tions is 4th March 1988.

REGISTR

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Invites outstanding original research works merit, carried out during 1983 to 1987 in "Solid St Physics" from researchers of Universities or Instit deemed as Universities or Institutes of National Le for the award of a cash prize and a Gold Medal bo amounting to Rs. 5,000/- under "Hari Ohm Ashra Prerit Shri Harivallabhdas Chunilal Shah Resear Endowment" which should reach the University lat by 31-3-1988.

A speciman of application form and the terms a conditions can be had from the Sardar Patel Univ sity by sending a self-addressed envelope affixed w stamps worth Re. 1/- or in person.

REGISTR

INDIAN STATISTICAL INSTITUTE

ADMISSION NOTICE 1

Session : 1988-89

Applications are invited for the following courses/fellowships for which duration, values of monthly pend/fellowship and eligibility conditions are briefly described below. Further details and other conditions available in the prospectus. Selection of candidates is based on academic record, written tests and inter-ws.

Bachelor of Statistics (Hons) : *Duration* : 3 years; *Stipend*: Rs. 250 ; *Eligibility* : Successful completion of 10+2 years of secondary education (or equivalent thereof) with Mathematics and English.

.2 **Master of Statistics :** *Duration* : 2 years ; *Stipend*: Rs. 400 ; *Eligibility*: 3-year Bachelor's degree with Statistics and Mathematics as full subjects or equivalent qualification, obtained after twelve years of secondary education. Those without Statistics, but having outstanding mathematical ability, may also be considered. Holders of Statistician's Diploma/Senior Diploma of ISI are eligible for admission to the second year of the course.

1.3 **Master of Technology in Computer Science :** *Duration* : 2 years; *Stipend* : Rs. 1000 ; *Eligibility* : Master's degree in a relevant subject or Bachelor's degree in Engineering/Technology or equivalent qualification and knowledge of relevant topics of Physics and Mathematics.

1.4 **Post-Graduate Diploma in Statistical Quality Control and Operations Research :** *Duration* : 15 months ; *Stipend*: Rs. 1000; *Eligibility* : Bachelor's degree in Engineering/Technology or Master's degree with Statistics or Mathematics up to graduate level or recognised research/other work in Statistics.

2. **Junior Research Fellowships:** *Fellowship*: Rs. 1000. The Institute conducts research in many areas of Mathematics, Statistics and Economics and offers fellowships for Research Courses in these subjects leading to registration for Ph. D. degree of the Institute. Details are available in the prospectus. The Institute also offers fellowships in other research areas. Eligibility conditions for the fellowships are given below :

2.1 **Research Courses** leading to Registration for the Ph. D. degree : *Eligibility* (i) A good academic record with M.A./M.Sc. degree in Mathematics, Statistics, Economics or Econometrics or (ii) outstanding mathematical maturity with B.A./B.Sc. degree with Mathematics or Statistics or Economics as the main subject.

2.2 **Fellowships in other Research Areas :**

Group A : Several areas of Computer Science which include Analysis of Algorithms, Artificial Intelligence, Computer Communication Network, Computer Vision, Digital Communication, Fault Tolerance, Image Analysis, Parallel Algorithms and Processing, Pattern Recognition, Testable Design, VLSI Architecture. *Eligibility* : (i) A good academic record with M.Sc. or equivalent degree in Physics/Mathematics/Statistics or (ii) B.E. or equivalent degree or M.E. or equivalent degree in Electronics/Computer Science/Electrical Engineering.

Group B : Dynamical Meteorology, Hydrodynamic Stability, Statistical Theory of Turbulence, Viscous Flow, Sediment Transport and Theory of Dispersion. *Eligibility* : (i) A good academic record with M.Sc. or equivalent degree in Physics Mathematics/Statistics or (ii) B.E. or requivalent degree in Mechanical Engineering.

Group C : Quantum Mechanics and Quantum Field Theory, Nuclear and Particle Physics, Statistical Physics, Cosmic Ray Physics and Plasma Physics. *Eligibility* : (i) A good academic record with M.Sc. or equivalent degree in Physics/Mathematics/Statistics preferably with Physics or Mathematics at the graduate level.

Group D : (i) Stratigraphy and Sedimentation and (ii) Stratigraphy and Palaeontology. *Eligibility* : A good academic record with a Master's degree in Geology/Applied Geology/Geo-

logical Sciences and capability of undertaking field work.

Group E : Urban Human Biology/Biological Demography. *Eligibility* : A good Academic record with a Master's degree in Anthropology with specialisation in Physical Anthropology.

Group F : Advanced techniques of analysis in Demography, Stochastic models in Demography, Family Planning Programme Evaluation. *Eligibility* : A good academic record with a Master's degree in Demography/Statistics/Economics/ Sociology with Mathematics/Statistics at the g duate level.

3. **Certificate/Diploma Courses on Operation a Programming of Automatic Data Process Equipment :** *Duration* : 1 year for certificate a additional 1 year for Diploma if one attain specified standard in the Certificate Course. *T tion Fee*: Rs. 200 per year, no stipend. *Eligibili* (i) Age below 25 years on 1.4.88, (ii) Bachelo degree or equivalent with Mathematics as a su ject at higher secondary (10+2) level and (acquired typing speed of 25 words per minu

All courses/fellowships are offered in Calcutta. In addition, courses **1.2** and **2.1** are offered in bot Delhi and Bangalore.

Besides stipend/fellowship there is also a suitable annual book allowance for all courses except 2. Host facilities are available. Selection tests for the courses/fellowships will be conducted at a number of centre Candidates who have completed or are due to complete the qualifying examinations before **1 July 1988** ma also apply. This date may be relaxed by the Institute in case of candidates with outstanding academic record an performance in the selection tests and interviews. Candidates should satisfy themselves that they are eligible f admission to the course or for the award of the fellowship for which they apply. If at any stage it is found th a candidate does not satisfy the eligibility conditions or the information furnished in the application is incorrec the application will be cancelled. Prospectus and application form can be obtained from the **Dean of Studie Indian Statistical Institute, 203 Barrackpore Trunk Road, Calcutta 700 035**, by paying an amount of Rs. 15 by cash (between 11.00 a,m. and 2.00 p.m. on working days between Monday to Friday) or by crocsed posta order/bank draft payable at Calcutta in favour of "**Indian Statistical Institute**". Postal orders must contain th name and address (in block letters) of the sender. Money orders and cheques will not be accepted.

Last Date for receiving requests for Application Forms	:	**7 March 1988**
Last Date for receiving completed Application Forms	:	**28 March 1988**
Date of Selection Tests	:	**SUNDAY, 15 May 1988**
Tentative Dates of Interview	:	**20 June—30 June 1988**

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(An autonomous Registered Society under the Administrative Control of Ministry of Welfare, Government of India).

Invites applications for the following posts as per details given below :

Sr. No.	Name of the Post		No. of Posts
1.	**Lecturer** : (i) Audiology (ii) Speech Pathology	—1 —1+1*	3 (one each for R.C. Delhi & R.C. Hyderabad).
2.	**Clinical Assistant**		6
3.	**Vocational Instructor (Welding)**		1
4.	**Staff Nurse (part time)**		1
5.	**Assistant Trainer (Sign Language)**		1*
6.	**Artist**		1*

* FOR UNICEF PROJECT

MINIMUM QUALIFICATION

For post at Sr. No. 1	: (i) & (ii) M.Sc. in Audiology/Speech & Language Pathology with 2 years experience or B.Sc. in Audiology & Speech Therapy with 7 years teaching experience.
For post at Sr. No. 2	: B.Sc. in Audiology & Speech Therapy.
For post at Sr. No. 3	: (a) S.S.C. or equivalent. (b) Certificate in the respective trade from recognised Institute. (c) Training in any Advanced Training Institute (A.T.I.) and Apprenticeship. 2 years experience as Instructor or 3 years practical experience in Gas and A.R.C. welding.
For post at Sr. No. 4	: Degree or Diploma in General Nursing and Midwifery. Experience of Rehabilitation nursing preferred.
For post at Sr. No. 5	: Graduate, preferably B. Ed. Conversant with English and one more major Indian Language and interested in working with the Deaf.
For post at Sr. No. 6	: G.D. (Arts) from a recognised School of Art. Experienced as illustrator in any recognised Institution.

PAY SCALES			TOTAL INITIAL REMUN.
Post at Sr. No.	1	Rs. 2200-4000/-	Rs. 2,036/- p.m.
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Post at Sr. No.	3	Rs. 1200/- consolidated	
Post at Sr. No.	4	Rs. 900/- p.m. consolidated	
Post at Sr. No.	6	Rs. 1200-2400/-	Rs. 1,651/-

AGE

For post at Sr. No.	1	:	Not exceeding 35 years.
For post at Sr. Nos.	2,4,5 & 6	:	Not exceeding 30 years.
For post at Sr. No.	3	:	Not exceeding 28 years.

Applications giving full details such as Name in full, postal address, Date of Birth, Educational Qualification with Xerox copies of certificates, details of experience should be forwarded to the Director, Ali Yavar Jung National Institute for the Hearing Handicapped, Opp. Bandra Telephone Exchange. K.C. Marg, Bandra Reclamation, Bandra (W), Bombay 400 050, within 15 days from the date of advertisement. Incomplete applications will not be considered.

Note : Out of the total posts 4 will be reserved for SC/ST, Ex-servicemen. In the event that these candidates do not become available the posts will be filled up by others on year to year basis.

All the posts are temporary but likely to be permanent except UNICEF post which is for the project period only, the period of UNICEF Project will be minimum 1 year 3 months & maximum 3 years.

HIMACHAL PRADESH UNIVERSITY

"RECRUITMENT BRANCH" SHIMLA-171005

Advertisement No. 1/88
Dated : 29.1.88

Applications are invited (on prescribed form) for the following teaching posts so as to reach the **Section Officer, Recruitment Branch, H.P. University, Shimla-171005,** alongwith a crossed Indian Postal Order of Rs. 20/- (Rs. 10/- for SC/ST) payable to the Finance Officer, H.P. University, by **February 27, 1988.**

I. Professors : (Pay Scale : Rs. 1500-2500) in the following subjects of P.G. Centre:

Bus. Administration-1.

Public Administration-1 (Plan Post).

II. Readers : (Pay Scale : Rs. 1200-1900) in the following subjects of P.G. Centre :

Public Administration-1 (Plan post)
Statistics-1 (Plan post)
Journalism-1 (Plan post)
Computer Sciences-1 (Plan post)
Yoga-1 (Plan post)
Education-1.
Sanskrit-1

Chemistry-1 (Specialisation in Organic/Inorganic/Analytical/Physical Chemistry. Experience in experimental and theoretical spectroscopy will be preferred).

III. **Lecturers** : (Pay Scale : Rs. 700-1600) in the following subjects of P.G. Centre :

Statistics-1
Computer Sciences-1
Education-1
Chemistry-3 (Specialisation : One each in Physical, Organic, Inorganic/Analytical).

Essential Qualifications : Qualifications for all the posts are the same as prescribed by the University Grants Commission for Post-graduate classes.

Candidates already in service should send their applications through proper channel. An advance copy, however, may be sent direct.

Candidates called for interview will have to come to the place of the interview at their own expenses and bring with them their original research papers, degrees and certificates etc. for verification.

The University reserves the right to negotiate with suitable person or persons, if necessary, who may not have applied formally.

The University also reserves the right to fill up or not to fill up the post/s or to call only selected candidates for interview. The number of posts likely to be filled may vary.

Application form can be obtained from the **Section Officer, Recruitment Branch, H.P. University, Shimla-171005**, personally on payment of Rs. 5/- or by making a written request to him accompanied by self-addressed envelope of 23 x 10 cms. with postage stamps affixed worth Rs. 1.40 paise and a postal order of Rs. 5/- drawn in favour of the Finance Officer.

Note : (i) Applications received on plain paper, applications not in confirmity with the requirements as specified in the application form and applications received after the last date will not be entertained, and no correspondence will be entertained in this regard.

(ii) A person applying for more than one post should send a separate application for each post.

(iii) Other things being equal, preference will be given to the candidates belonging to the SC/ST for appointment to the post of Lecturer.

(iv) Persons those who have applied earlier in response to this office advertisement Nos. 6/86, 1/87 and 4/87 dated 25.11.86, 7.3.87 and 17.10.87 respectively, need not to apply again. However, they may send additional informations, if any.

A.R. Chauhan
REGISTRAR

RAJASTHAN AGRICULTURE UNIVERSITY

BIKANER CAMP : UDAIPUR

Advertisement No. 2/88

Dated : January 27, 1988

Applications are invited on prescribed applications form for the following posts in Teaching/Research/Extension on regular basis in the University. The application form and **Full details about qualifications as prescribed by the University** etc. can be obtained from Shri P.P. Mathur, Deputy Registrar, University Camp Office, Udaipur Pin-313001 on payment of Rs. 5/- through crossed Indian Postal Order payable to the "Comptroller, Rajasthan Agriculture University, Camp Udaipur" alongwith a self-addressed envelope of 27 cms. x 12 cms. size bearing Postal Stamps of Rs. 2.20 only and send the application form duly completed in all respect to the Registrar, Rajasthan Agriculture University, Bikaner upto **10th March, 1988.**

Those candidates who have already applied for these posts in response to previous advertisement No. 11/86 dated 27.12.86, 1/87 dated 29.1.87 and 3/87 dated 17.6.87 issued from Sukhadia University, Udaipur need not to apply again, but they should please send their fresh Bio-data (one side typed) on plain paper to update the same on the above address.

Pay Scale: Rs. 1500-60-1800-100-2000-125/2-2500.

1.	Director Research (Vety. & Animal Science)	1
2.	Associate Director Research (Vety. & Animal Science)	1

Associate Professor : Pay Scale : Rs. 1200-50-1300-60-1900.

1.	Animal Breeding and Genetics	1
2.	Child Development	1
3.	Farm Machinery and Power Engineering	1
4.	Animal Production	1

Assistant Professor : Pay Scale : Rs. 700-40-1100-50-1600.

1.	Animal Breeding & Gen.	2
2.	Animal Production	5
3.	Vety. Medicine	2
4.	Livestock Production & Management	1
5.	Home Management	1
6.	Farm Machinery & Power Engg.	1
7.	System Engineer (Computer Application)	1

General Note

1. Number of posts may be **Increased or Decreased.**

2. Application forms received after the expiry of the last date may also be considered at the discretion of the Vice-Chancellor.

3. 16% posts would be reserved for Scheduled Caste and 12% for Scheduled Tribes, subject to general suitability.

4. A higher start in the grade may be considered for exceptionally qualified candidate.

5. The University Reserves the right not to fill up post(s) advertised.

REGISTRAR

DR. YASHWANT SINGH PARMAR UNIVERSITY OF HORTICULTURE AND FORESTRY

SOLAN

CORRIGENDUM

In continuation of Advertisement No. 10/87 published in The University News on 21-12-1987, it is hereby notified that candidates having M.Sc. Forestry/M.Sc. with AIFC with consistently good academic record may also apply for the post of Scientist (Forestry) in the Scale of Rs. 1200-1900 appearing at Sr. No. IV (6) of the advertisement. The last date for receipt of applications for this post is hereby extended upto **7-3-1988.**

B.S. Nainta
REGISTRAR

HARYANA AGRICULTURAL UNIVERSITY
HISAR

Advertisement No. 1/88

Applications are invited for following posts on the prescribed proforma obtainable from Assistant Registrar (Faculty), Haryana Agricultural University, Hisar by sending self-addressed unstamped envelope size 23 x 10 cm. alongwith Indian Postal Order of Rs. 2/- in the name of Assistant Registrar (General). Candidates already in service must apply through proper channel. Applications, complete in all respects, accompanied by a fee of Rs 20/- for posts at Sr. No. 1 to 19 & 45, Rs. 15/- for posts at Sr. No. 20 to 44; Rs. 10/- for posts at Sr. No. 46 to 61,63; and Rs. 5/- for posts at Sr. No. 62 in the form of Indian Postal Order in the name of Assistant Registrar (General), Haryana Agricultural University, Hisar, payable at HAU Post Office, Hisar, should reach the Registrar by **9.3.88 (23.3.88** for candidates residing abroad). Incomplete applications and those received late will not be considered. Benefit of Contributory Provident Fund and Leave etc. admissible as per University rules. The applicants must possess prescribed qulifications and experience on the last date for receipt of applications. However, those who have submitted their theses (Master's/Doctorate's level) by the last date of receipt of applications are also eligible to apply. The date of submission of thesis must be supported by a certificate duly signed by the concerned authority of the institution. They will be considered by the Selection Committee only if they produce the completion certificate of Master's/Doctorate degree at the time of interview. The envelope containing application must be superscribed as "APPLICATION FOR THE POST OF—————————"

1. **Professor of Eminence in Agricultural Economics (Sir Chhotu Ram Chair)** (One) : Eminent Scientist of National and International repute with distinct and productive record of work in the discipline of Agricultural Economics.

2. **Professor (Forestry)** : (One) : **Essential** : (i) Second Class B.Sc./B.Sc. (Agri.)/B.Tech/B.E.; (ii) Second Class A.I.F.C. (Assoc. Indian Forest College/ Master's degree in Forestry or equivalent; (iii) Ph.D. in Forestry; (iv) Ten years experience in Forestry out of which 5 years should be in the rank of Associate Professor or equivalent. **Desirable** : Experience of post-graduate teaching and guiding research in Forestry.

3. **Professor of Family Resource Management** : (One) : **Essential** : (i) Second Class B.Sc. (Home Sci.); (ii) Second Class M.Sc. in Home Management/Family Resource Management: (iii) Ph.D. in Home Science/Family Resource Management; (iv) Fifteen years experience of teaching/research/extension. **Desirable** : (i) Extension experience in designing rural field work; (ii) Capacity for organization as Head of Section or Dept. of teaching or research institute administrative experience.

4. **Professor of Animal Breeding** (Leave Vacancy upto 18.11.1991) (One) : **Essential** : Second Class B.V.Sc & A.H./ B.Sc. (Animal Science)/B.Sc. (Agri.)/ B.Sc. (Dairying); (ii) 2nd Class Master's degree with specialisation in Animal Breeding; (iii) Ph.D. in Animal Breeding/Animal Genetics; (iv) Ten years experience of teaching/research/extension in Animal Breeding/Animal Genetics and evidence of having conducted independent research in farm animal breeding in the form of published work in scientific Journals of repute. **Desirable** : Training in Biological Statistics.

5. **Professors of Physical Education** (Two) : (i) 2nd Class BSH & PE/B.A./ D.P.E./B.P.E.; (ii) 2nd Class Master's degree in Physical Education; (iii) 20 years experience out of which atleast 10 years should be as Associate Professor or equivalent in Physical Education. OR Ph.D. in Physical Education with atleast 10 years experience out of which atleast 5 years should be as Associate Professor or equivalent. **Note** : Persons having administrative experience as Principal/ Vice-Principal will be preferred.

6. **Professor, Computer Centre** (One): (i) Master's degree in Computer Science, OR Computer Applications; (ii) 10 years experience in Computer Science especially Computer Programming including 5 years at Associate Professor's level. **Note** : Qualifications including experience relaxable for candidates found otherwise outstanding.

7. **Scientist (Nematode Taxonomy)** : (One) (Reserved for Scheduled Caste) : (i) Second Class B.Sc. (Agri.)/B,Sc.; (ii) Second Class M.Sc. in Zoology/Entomology/Plant Pathology with specialization in Nematology/Nematology; (iii) Ph.D. in Zoology/Entomology/Plant Pathology/Nematology with specialization in Nematode Taxonomy; (iv) Five years experience in Nematode Taxonomy research/teaching.

8. **Research Scientist (Anaesthesia)** : (One) : (i) Second Class B.V.Sc. & A.H.; (ii) Second Class M.V.Sc. in Surgery; (iii) Ph.D. in Surgery; 5 years experience in teaching/research/extension in Vety. Surgery & Radiology. **Desirable** : Advanced training in Vety. Surgery.

9. **Nematologist**: (One) (Reserved for Scheduled Caste) : (i) Second Class B.Sc. (Agri.)/B.Sc. Hons (Ag.); (ii) 2nd Class M.Sc. in Nematology; (iii) Ph.D. in Nematology; (iv) Five years experience of Teaching / Research / Extension in Nematology.

10. **Scientist (Forestry)** : (One) (Reserved for Scheduled Caste) : **Essential** : (i) Second Class B.Sc./B.Sc. (Agri.)/B.Tech./B.E.; (ii) Second Class (A.I.F.C. (Associate of Indian Forest College); (iii) Second Class Master's degree in Forestry or equivalent; (iv) Ph.D. in Forestry; (v) Five years experience in Forestry. **Desirable** : Training experience in Forestry Education/ Research.

11. **Senior Acarologist** : (One) (Reserved for Scheduled Caste) : (i) 2nd Class B.Sc./B.Sc. (Agri.); (ii) 2nd Class Master's degree in Zoology/Entomology/ Parasitology with specialisation in Acarology; (iii) Ph.D. in Zoology/ Entomology with specialisation in Acarology; (iv) 5 years experience in research / teaching / extension in Zoology/Acarology/Entomology. **Desirable** : Working experience in Acarology. Knowledge of Statistics as applicable to experimental data.

12. **Associate Professors (Child Development)** : (Two): (i) 2nd Class B.Sc. (Home Sci.) (Hons.) in Child Development/B.Sc. (Home Sci.); (ii) 2nd Class of M.Sc. in Home Science/Child Development; (iii) Ph.D. in Child Development; (iv) Five years experience of teaching/ research/extension in the field of Child Development. (If candidates with Ph.D. are not available, then non-Ph.D. with ten years experience will also be considered).

13. Associate Professor (Family Resource Management) : (One) : (i) 2nd Class B.Sc. (Home Sci); (ii) 2nd Class at Master's level in Home Management/Family Resource Management; (iii) Ph.D. in Home Management/Family Resource Management; (iv) Five years experience of teaching/research/extension in the field of Family Resource Management. (If candidates with Ph.D. are not available, then non-Ph.D. with ten years experience will be considered).

14. Associate Professor (Food and Nutrition) : (One) : (i) Second Class B.Sc. (Home Sci.)/B.Sc. (Agri.)/B.Sc.; (ii) Second Class M.Sc. in Foods & Nutrition/Food Science & Technology/Institutional Management; (iii) Ph.D. in Foods & Nutrition/Food Science & Technology/Institutional Management. (iv) 5 years experience of Teaching/Research/Extension in Foods & Nutrition/Food Technology.

15. Agrometeorologist : (One) : (i) Second Class B.Sc /B.Sc. (Agri.); (ii) Second Class M Sc. in Agril. Meteorology or Meteorology/Physics with training in Agril. Meteorology; (iii) Ph.D. in Agril. Meteorology or Meteorology/Physics with specialization in Agril. Meteorology; (iv) Five years experience in teaching / research / extension in Agroclimatology/Agril. Meteorology as evidenced by publication work in Journals.

16. Sr. Administrative Officer (One) : **Essential :** (i) Atleast Second Class graduate from any recognised University OR atleast a Master's degree from any recognised University; (ii) Ten years office experience of a University or any other teaching/research Institute or Central/State Govt. office or Central or State Govt. Undertaking, out of which atleast 5 years should be in a supervisory capacity of not less than class-II rank or equivalent of the Government.

Desirable : Post-graduation qulifications; (ii) Experience of working in an Agricultural University.

17. Store Purchase Officer : (One) : (i) Atleast Second Class degree in Engineering or Master's degree in Science/Physics / Chemistry/Commerce/Economics / Statistics / Mathematics/M.B.A. with major as Stores/Purchase Management or M.Sc. (Tech.) from a recognised University; (ii) Atleast five years experience of store purchase work in a responsible capacity including three years in a Class-II/Gazetted Officer rank in a Govt./Semi Govt. Department or a firm of repute; (iii) Age preferably between 40-50 years.

18. Architect : (One) : Degree in Architecture from an Institute or University recognized by All India Board of Technical Studies for employment to superior services, with 5 years experience after Bachelor Degree (B.Arch) out of which a minimum of three years as Assistant Architect.

19. Principal, Campus School : (One): (I) Master's degree or Honours Degree of a Foreign University recognised as equivalent to the Master's degree of an Indian University by the UPSC or Honours degree of such Indian Universities as may be recognised equivalent to the Master's degree by the UPSC; (ii) A teaching degree or a Diploma in Education or its equivalent; (iii) Atleast 10 years teaching experience including five years educational administrative experience and five years teaching experience in a recognized High or Higher Secondary School, preferably a Public or Sainik School.

20. Programmer : (One) : (i) M.A./M.Sc. in Maths./Statistics with one year diploma in Computer Science or B.Sc. in Maths./Statistics with 3 years diploma in Computer Science; (ii) Atleast two years experience in Computer Programming.

21. Assistant Scientist (Rumen Micro) (One) : Essential: (i) Second Class B.Sc./B.Sc. (Agri.)/B.V.Sc. & A.H./B.Sc. Animal Husbandry & Dairy/B.Sc. Animal Science; (ii) M.Sc. Microbiology/Zoology/Animal Science in first class or with OGPA not less than 3.2/4.00 basis or equivalent in the discipline. **Desirable:** Specialization in Rumen Microbiology.

22. Assistant Scientist (Agril. Physics) (One) : (Reserved for Scheduled Caste) : (i) Second Class B.Sc./B.Sc. (Agri.); (ii) Master's degree in firrst class or with an OGPA of not less than 3.2/4.00 or equivalent in Agril. Meteorology/Meteorology or Physics/Agril. Physics with training in Agril Meteorology. OR Atleast second Class Master's degree followed by Ph.D. in Agril. Meteorology or Meteorology/Physics/Agril. Physics with specialisation in Agrimeteorology/Agril. Physics.

23. Assistant Hospital Surgeon : (One) : (i) Atleast 2nd Class B.V.Sc. & A.H. (ii) Master's degree in the first clas or with an OGPA of not less than 3.2 4.00 basis or equivalent in the disciplin of Vety. Surgery or Vety. Medicine o Vety, Gynaecology. OR Atleast 2nd clas Master's degree followed by Ph D. in th discipline of Vety. Surgery or Vety Medicine or Vety. Gynaecology.

24. Assistant Professors (Agril Engineering) : (Four)—One each in th discipline of : (i) Electrical Engineering (ii) Agril. Process Engineering (Reserved for Backward Class); (iii) Civil Engineering; and (iv) Mechanical Engineering (Reserved for Scheduled Caste).

25. Assistant Professor (Agril Engineering) with specialisation i FARH MACHINERY & POWER (One) (Reserved for Backward Class for Kaul)

26. Assistant Scientists (Agril. Engineering) : (Two)—One each i specialisation of: (i) Soil & Water Engineering; and (ii) Farm Machinery & Power

27. District Extension Specialists (Agril. Engg.) : (Four) (Reserved for Scheduled Caste).

Qualifications for the posts at Sr. No. 24 to 27 : Atleast 2nd Class Bachelor's degree in the discipline mentioned against the posts followed by first class Master's degree in the concerned discipline/specialisation.

28. Assistant Professor Extension Education : (One) (Discipline—Extension Education/Agricultural Extension Education).

29. Assistant Scientist Extension Education (One) : (Discipline—Extension Education/Agril. Extension Education).

30. Assistant Professor (Vegetable Crops/Horticulture) : (One) with specialisation in Vegetable Crops (Reserved for Scheduled Caste).

31. Assistant Professor (Agril. Meteorology/Physics with Training in Agril. Meteorology) : (One)

32. Assistant Professors (Forestry) : (Four)—One in each in specialisation of: (i) Silviculture; (ii) Forest Product Utilization (Reserved for Ex-serviceman): (iii) Forest Tree Breeding; and (iv) Forest Nursery Technology (Reserved for Scheduled Caste).

33. District Extension Specialist

omology) for Sirsa : (One) : (Reserv- or Scheduled Caste).

34 **Assistant Fruit Breeder** in the cipline of Horticulture with specia- ition in Fruit Breeding : (One) for wal.

35. **Assistant Professor (Vety. rgery) :** (One) (Reserved for Scheduled ste).

36. **Assistant Professor (Vety. edicine) : (One)**

37. **District Extension Specialist eterinary) :** (Two) for Palwal and uruksheta (One reserved for Ex- erviceman)

38. **Assistant Scientist (Vety. Micro):** One) (Reserved for Scheduled Caste).

39. **Assistant Professor (Physics) :** One) : (Reserved for Ex-serviceman).

40. **Assistant Professor (Family Resource Management) :** (One) (Reserved for Backward Class).

41. **Assistaut Scientist (Foods and Nutrition) :** (One) (Reserved for Scheduled Caste).

42. **Assistant Professor (Child Development) :** (One).

43. **Junior Agronomists :** (Two) in the discipline of Agronomy.

44. **Assistant Scientist (Agronomy) :** (One).

45. **Agronomist :** (One) (Reserved i.e. for Scheduled Caste) (i) Second Class B.Sc. (Ag.); (ii) Second Class M.Sc. in Agronomy; (iii) Ph.D. in Agronomy; (iv) Five years experience of research/ teaching/extension in Agronomy.

Qualifications for the posts at Sr. No. 28 to 44

(i) Atleast Second Class at Bachelor's level in the respective faculties i.e. for posts at Sr.No. 28 to 34,39 and 43-44, B.Sc. (Agri./B.Sc. Hons (Agri.)/B.Sc. (Forestry) and for the posts at Sr. No. 35 to 38, B.V.Sc. & A.H. and for the posts at Sr. No. 40 to 42 B.Sc. (Home Sci.)/B.Sc.

(ii) Master's degree in the first class or with an OGPA of not less than 3.2/4.00 or equivalent in the discipline mentioned against each post, or atleast second Class Master's degree followed by Ph.D. in the disciplines mentioned against each Post.

Note : I. One or more qualifications relaxable in case of candidates found otherwise very suitable.

II. Persons who do not possess Ph.D. at the time of their selection shall not be allowed to cross the stage of Rs. 1300/- in the scale of Rs. 700-1600.

III. Special weightage will be given to extension experience possessed by the candidates, for posts in disciplines amenable to extension education.

IV. The experience will be counted after a candidate obtains his M.Sc. degree. Further a period of 3 years towards obtaining Ph.D. degree shall be excluded from the experience.

V. The qualifications regarding experience are relaxable at the discretion of the competent authority in the case of candidates belonging to the Scheduled Castes if, at any stage of selection, sufficient number of candidates from these communities possessing the requisite experience are not likely to be available.

46. **School Lecturer (Zoology) : (One) : Essential :** (A) (i) A graduate in Medicine or (ii) M.Sc. in Zoology or (iii) Post-graduate diploma in Zoology from the University of Delhi. (B) Degree or recognised diploma in Education. (C) Three years teaching experience to Senior Secondary/Intermediate classes. **Desirable :** (i) Teaching experience in CBSE affiliated school. (ii) Active participation in Co-curricular activities and ability to organise such activities in the school.

47. **D.P.E.** (One) : **Essential :** Master's degree in Physical Education from a recognised University; (ii) Three years experience in recognised Senior Secondary (10+2) School or Intermediate College; (iii) Must be able to teach in English Medium. **Desirable :** (i) Teaching experience in CBSE affiliated school. (ii) Active participation in co-curricular activities and ability to organise such activities in the school.

48. **School Lecturer (Mathematics) :** (One) **Essential :** (i) Master's degree in the subject with degree or a recognised diploma in Education. (ii) B.Sc. with Physics. (iii) Experience of teaching Mathematics to Intermediate or higher classes for three years. **Desirable :** (i) Teaching experience in CBSE affiliated school. (ii) Active participation in co-curricular activities and ability to organise such activities in the school.

49. **School Lecturer (Arts & Painting) :** (One) **Essential :** (A) (i) High Secondary/Intermediate with minimum 5 years (full time) diploma in Fine Art/ Painting/Drawing & Painting from a recognised Institute/University. OR (ii) Graduate with Fine Art/Art/Drawing/ Painting as one of the subjects with minimum 4 years (full time) diploma from a recognised Institute/Univ. OR (iii) M.A. in Fine Art/Art/Drawing & Painting with a minimum 2 years (full time) diploma from a recognised Institute/University. (B) Three years teaching experience of Arts/Painting/Commercial Art to Secondary or Higher Classes. **Desirable :** (i) Teaching Experience in CBSE affiliated school. (ii) Active participation in Co-curricular activities and ability to organise such activities in the school.

50. **School Teacher (Geography) :** (One) (i) A graduate with Geography in B.A. with a recognised degree or diploma in Education; (ii) Three years teaching experience to lower classes in English medium. **Desirable :** (i) Active participation in co-curricular activities and ability to organise such activities in School. (ii) Teaching experience in CBSE affiliated school. Ability to teach through Hindi medium.

51. **School Teacher (Instrumental Music) :** (One) (i) B.A. (Pass) or B.A. (Hons.) degree with Music from a recognised University; (ii) Degree or diploma in education; (iii) Three years experience of teaching Music Classes in a school. **Note :** Preference will be given to those candidates who can play more than one instrument including Sitar, Tabla and Guitar. **Desirable :** (i) Teaching experience in CBSE affiliated school; (ii) Active participation in co-curricular activities and ability to organise such activities in the school.

52. **School Teacher (Sanskrit) : (One) Essential :** (i) Honours in Sanskrit and Matriculation in English OR B.A. with Sanskrit as optional subject. (ii) A recognised degree or diploma in Education; (iii) Three years teaching experience in English medium school. **Desirable :** (i) Teaching experience in CBSE affiliated school. (ii) Active participation in co-curricular activities and ability to organise such activities in the school.

53. **School Teacher (Mathematics) :** (One) **Essential :** (i) B.Sc. with Maths. and Physics; (ii) B.Ed. or a recognised degree in education; (iii) Three years teaching experience to Secondary classes in English medium. **Desirable :** (i) Teaching experience in CBSE affiliated school. (ii) Active participation in co-curricular activities and ability to organise such activities in the school.

54. **School Teacher (English) :** (One): **Essential :** (i) Graduate in the subject with a recognised degree or diploma in Education. (ii) 3 years teaching experience in recognised English medium school. **Desirable :** (i) Teaching experience in CBSE affiliated school. (ii) Active participation in co-curricular activities and ability to organise such activities in the school.

55. **P.T.I.** (One) (Reserved for Ex-serviceman). **Essential : (A)** (i) A Bachelor's degree in Physical Education of three years duration of a recognised University. (ii) Degree of B.P. Ed. of a recognised University; OR D.P. Ed. awarded by a recognised University/Institution after training of a minimum one academic session, provided that the admission qualifications for the diploma is atleast a University degree. (B) Three years experience in a Higher Secondary level. **Desirable :** (i) Teaching Experience in CBSE affiliated school. (ii) Active participation in co-curricular activities and ability to organise such activities in the school.

56. **Architectural Assistant :** (One) (Reserved for Ex-Serviceman) Degree or equivalent Diploma in Architecture from an Institute recognised by the Govt; OR Intermediate in Architecture with five years experience under a qualified Architect after qualifying; OR Diploma in Architectural Assistantship with eight years experience under a qualified Architect after qualifying; OR Diploma in Civil Draftsmanship with nine years experience under a qualified Architect after qualifying.

57. **Junior Programmer :** (One) Second Class B.Sc. with Mathematics/Statistics followed by diploma in Computer Science or M.Sc. Statistics/Agricultural Statistics with experience in Computer Programming in recognised institution for atleast one year.

58. **Instrument Mechanic :** (One) (i) A Certificate/Diploma in instrument Mechanic Course or equivalent from a recognised institution with three years experience in some reputed instrumentation firm/Govt. undertaking.

59. **Senior Technical Assistants :** in the discipline of Agronomy, Plant Breeding, Entomology, Plant Pathology, Horticulture, Vegetable Crops and Soil Sciences. **Qualifications :** 2nd Class Bachelor's degree in Agriculture/discipline concerned followed by Master's degree in the discipline.

60. **Technical Assistant (Home Science) :** (Two) 2nd Class Bachelor's degree in Home Science.

61. **Technical Assistant (Agronomy) :** (4) Second Class Bachelor's degree in Agriculture.

62. **Steno-Typists (English)** (Ten) : (General : 4, Backward Class : 2, Ex-servicemen—1, Scheduled Caste : 2 and Physically handicapped : (1) (i) Matriculate 2nd Class or atleast Higher Secondary/Pre-University or equivalent examination; (ii) Shorthand speed in English 80 W.P.M. to be transcribed at the speed of 15 W.P.M. **Desirable :** Candidates knowing shorthand in both (English & Hindi) languages will be given preference.

Note : Candidates knowing Hindi shorthand only need not apply.

63. **Meteorological Assistant** (for Bawal) : (One) : **Essential :** 2nd Class B.Sc./B.Sc. (Agri.) with training in Meteorology; (ii) 2nd Class M.Sc. in Physics or in Agril. Physics. **Desirable :** Two years' experience of Research.

Note 1. If suitable candidates for posts at Sr. No. 7, 9, 11, 27 and
from Scheduled Caste catego
are not available for the pos
reserved for them, these vaca
cies shall be filled up first fro
the Backward Class candidate
Likewise, if suitable candidat
for vacancies meant for Bac
ward Classes are not availab
then these will be thrown op
first to the Scheduled Cas
candidates. However, in ca
suitable candidates belonging
either of the two categories
respect of the posts meant f
both the categories (Schedule
Castes as well as Backwar
Classes) are not available. the
such vacancies shall be filled u
from the General Category.

2. The benefit of reservation will b
admissible only to those S.Cs
B.Sc. and E.S.Ms. candidat
who are domiciles of Haryar
State.
3. Number of vacancies mentione
against each post can vary.
4. Indian Postal Orders purchase
before 6.2 88 will not be ente
tained.
5. 2% posts will be available f
Freedom Fighters, their childre
and their grand children, if th
quota reserved for Ex-servic
men remains unfilled.
6. **For Sr. No. from 46 to 63**

The applicant should be 18 year
old on the last date of th
receipt of applications. Th
upper age limit is 30 year
relaxable upto 5 years in respec
of Scheduled Caste and Back
ward Class candidates. For Ex
servicemen the upper age is 3
years plus continuous militar
service added by 3 years.

PAY SCALES

Sr. No. of Posts	Pay Scales		Total emolument at the initial of th pay scale (exclusive of House Rent & C.C.A.)
1.	Rs. 3000+allowances	) Likely to be	Rs. 6265/-
2-6.	Rs. 1500-60-1800-100-2000-125/2-2500	) revised on) UGC pattern.	Rs. 3424/-
7-15 & 45	Rs. 1200-50-1300-60-1900	)	Rs. 3019/-
16.	Rs. 1500-60-1800-100-2000+ (Unrevised)	Rs. 100 Special Pay	Rs. 2894/-
17 & 18.	Rs. 3000-100-3500-125-4500 (Revised State Pattern)		Rs. 3240/-
19.	Rs. 2200-75-2800-100-4000 (Revised State Pattern)		Rs. 2376/-
20-44	Rs. 700-40-1100-50/1300-Assessment-1600 (Likely to be revised on UGC pattern)		Rs. 2059/-
46-49 & 56.	Rs. 1640-60-2600-EB-75-2900	)) Revised	Rs. 1771/-
50-55, 57-58, 60-61 & 63	Rs. 1400-40-1600-50-2300-EB-60-2600	))	Rs. 1512/-
59.	Rs. 550-25-750/30-900 (UGC Pattern) (Likely to be revised)		Rs. 1613/-
62.	Rs. 950-20-1150-EB-25-1500 (Revised)		Rs. 1026/-

REGISTRAR

INDIAN VETERINARY RESEARCH INSTITUTE

IZATNAGAR : U.P.

Advt. No. 1/88-IVRI

Applications addressed to the Asstt. egistrar, (MRDPC), IVRI, Izatnagar-3122 (U.P.) are invited for recruitment the following posts at this Institute, nder the administrative control of ndian Council of Agricultural Research. he posts are temporary but likely to ontinue.

Candidates fulfilling the required ligibilities should apply, giving full articulars, on plain paper in the Fornat, given below alongwith the prescribed fee, within fifteen days from the date of this advertisement. Candidates serving in Govt./Semi-Govt./Autonomous Organisations should apply through proper channel. The posts are pensionable but non-Govt. The Headquarters of the Posts will be Izatnagar, Mukteshwar, but the appointee will be liable to serve in any Instt. of the ICAR located any where in India. Applications, in complete in any respect/without prescribed fee/ wrongly filled in or received after the due date will be outrightly rejected.

1. T-6 (Junior Librarian)
Rs. 2200-4000, 1 post Un-reserved.
Essential Qualification

(i) Bachelor's Degree of a recognised University with Master's Degree (M. Lib.) in Library/Information Science (OR) any equivalent degree or Certificate conferred by any organisation which are approved by the Ministry of Education, G/I like INSDOC and DRTC.

OR

Master's Degree of a recognised University with Diploma or Degree (B. Lib.) in Library/Information Science (OR) any equivalent Certificate if conferred by any organisation which are approved by the Ministry of Education, G/I.

(ii) 5 years experience for Diploma Holders.

Desirable

(i) 3 years experience for Degree Holders.

(ii) Knowledge of one Foreign Language.

(iii) Experience of working in university/Institute/Council or any other organisation of repute.

(iv) Science Degree.

2. T-5 (Technician) Rs. 2000-3500,
2 posts—one reserved for SC and one reserved for ST.

Essential Qualification

(i) Three years diploma/Bachelor's Degree/equivalent qualification in the field of Microbiology/Bio-chemistry/ Molecular Biology/Zoology.

(ii) 3 years experience in the relevant field for Diploma Holders.

Desirable

(i) Master's degree in Microbiology/ Bio-chemistry/Molecular Biology/Zoology with training in Molecular Biology.

(ii) Some experience for Bachelor's Degree holders.

Details of Fee : Rs. 8/- (Rs. 2/- in case of SC/ST candidates). The fee will be paid in the form of crossed IPO payable to the Director, IVRI, Izatnagar at Izatnagar P.O. OR in the form of Bank Draft drawn in favour of the Director, IVRI, Izatnagar payable at S.B.I., CARI Branch, Bareilly (Code No. 7027).

The number of posts may increase or decrease.

T.A. for attending interview for the posts at Sl. No. 1 & 2 will be paid to all the candidates. The prescribed educational qualifications are the minimum and mere possession of the same does not entitle the candidate to be called for interview. When the number of applications received in response to an advertisement is large and it will not be possible OR convenient for the Institute to interview all the candidates, it may restrict the number of candidate for interview to a reasonable limit on the basis of qualification and experience higher than the minimum prescribed in the advertisement OR by holding a screening test.

If the candidate desires to apply for more than one post he/she should submit separate application for each post alongwith the prescribed fee and other document/certificates. The candidates are required to send a self-addressed unstamped envelope (28 cm. x 12 cm.) with the application. The candidate must write the name of the post and advertisement number in capital letter on the top of the application/envelope.

Age limit : 18 to 35 yrs. for the post at Sl. No. 1, and 18 to 30 yrs. for the posts at Sl. No. 2 (relaxable upto 35 yrs. for ICAR employees.)

Age relaxable for SC/ST/Ex-servicemen/P.H. as per rules. The crucial date for determining the age limit shall be the last date of receipt of applications from the candidates.

FORMAT

APPLICATION FOR THE POST OF..

AFFIX
RECENT PASSPORT SIZE
PHOTOGRAPH

1. Name in full (In capital letters)
2. Father's/Husband's Name :
3. Present postal address :
4. Permanent address :
5. Place and date of birth :
6. Age as on closing date of advertisement :
7. Nationality SEX
8. Name of Employment Exchange ....Registration No.............................. Valid up to.............................
9. Please tick (√) the category to which you belong : SC/ST/PH/Gen./Ex-servicemen.
10. Details of attested/photostat copies of testimonials :
11. Details of IPO/Bank Draft : No. Date
12. Qualifications

Name of Exam.	Name of Board/Univ.	Class/Div.	%	Year of passing	Subjects taken

13. If employed give following particulars :

Name of Employer	Designation	Pay scale & salary	Nature of Employment Temp. Q P. Permanent	Date of joining	Date of leaving

I hereby declare that all the statements made above are true, complete and correct to the best of my knowledge and belief. I also declare that (i) I have never been punished or debarred from Govt. (Central/State) Autonomous organisations and ICAR service. (ii) I have not been convicted by a court of law for any offence. In the event of any information being found false/incorrect/eligibility being detected at any time before or after the Exam./interview action may be taken against me, and I shall be bound by the decision of the employer.

Date ;

Signature of Candidate

THE UNIVERSITY OF BURDWAN
RAJBATI : BURDWAN
WEST BENGAL

Advertisement No. 10/87-88

Dated : January 5, 1988

Applications in the prescribed form are invited for the following posts in the approved scales of pay (viz. Professor—Rs. 1500-60-1800-100-2000-125/2-2500/-; Reader—Rs. 1200-50-1300-60-1900/- and Lecturer—Rs. 700-40-1100-50-1600/-) PLUS dearness and other admissible allowances according to the Rules of the University.

(A) Professor of Geography ... One post

(B) Reader in English ... One post

(C) Reader in Political Science... One post

(D) Lecturer in English ... One post (lien bound)

(E) Lecturer in Business Administration One post (Lien bound but likely to be permanent)

Minimum Qualifications

For the post of "A"

An eminent scholar with published work of high quality actively engaged in research. About ten years' experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

For the posts of "B" & "C"

Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching methods or (iii) production of teaching materials.

At least five years' experience of teaching and/or research provided that at least three of these years were as lecturer or in an equivalent position.

This condition may be relaxed in the case of candidates with outstanding record of Teaching/Research.

For the post of "D"

(a) A Doctor's Degree or research work of an equally high standard; and

(b) Good academic record with at least Second Class (C in the seven point scale) Master's Degree in a relevant subject from an Indian University or an equivalent degree from a foreign University.

Having regard to the need for developing interdisciplinary Programmes, the degrees in (a) and (b) above may be in relevant subjects.

Provided that if the Selection Committee is of the view that research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's Degree or equivalent research work is not available or is not considered suitable, a person possessing a good academic record, (weightage being given to M.Phil. or equivalent degree or research work of quality) may be appointed provided he h done research work for at least tw years on the condition that he w have to obtain a Doctor's Degr or give evidence of research wo of equivalent high standard withi eight years of his appointmen failing which he will not be ab earn future increments until h fulfils these requirements.

For the post of 'E'

A Master's degree in Busine Administration or M.Tech. Engineering with first class with th provision that the incumbent wou acquire a doctorate degree within period of eight years.

In the case of allied subjec like Industrial Psychology, Person nel Management, Business Statistic Cost Accountancy, where Lecturer are required to be recruited wi qualifications other than M.B. or M.Tech., the minimum qualific tions shall be the same as 'D'.

Desirable Qualifications	**Specialisation or Proficiency**
For the post of "A" :	Economic and Social Geograph Physical Geography
For the post of "B" :	Milton/19th. Century Literatur
For the post of "C" :	International Relations
For the post of "D" :	Any branch of the subject
For the post of "E" :	Any branch of the subject

The choice of the Committee may not necessarily be confined t those who apply formally.

For application forms and other particulars pleas apply to the Registrar, University of Burdwan, Rajbati, Burdwan with a self-addresse stamped (Re. 1/-) envelope (9" x 4").

Last date for submission of application with requisite fee of Rs. 5/- is February 29, 1988.

P. Banerje
REGISTRA

TATA INSTITUTE OF SOCIAL SCIENCES

DEONAR, BOMAAY 400 088
No. Admn/Advt./87

Dated : February 3, 1987

Applications are invited for the post of a **Managing Editor (Equivalent to Reader) in the Publications Department,** having M.A. degree in English language and literature **OR** M A. degree in Journalism and B.A. degree in English language and Literature **OR** M A. degree in Social Sciences and qualifications in Journalism/Publications or experience in a Publishing Company. Candidates should have 55% of marks in M.A. degree and either teaching experience at the University/College level or experience of editing journals/books Either Ph.D. with 5 years of work experience or about 8 years of work experience for those without a Ph.D. Pay scale Rs. 1200-50-1300-60-1900 (unrevised) The prescribed application form, alongwith details of qualifications, experience, etc., prescribed for the post, should be obtained from the above address either in person or by post, by sending an application f the same, alongwith a stamped (Rs. 2.0 self-addressed envelope superscrib "REQUEST FOR APPLICATIO FORM FOR MANAGING EDITOR The last date for receipt of filled application form is **29.2.1988.**

N. Krishnamoorth
REGISTRAR

SHIVAJI UNIVERSITY,
KOLHAPUR

Corrigendum to Advertisement No. 27

Dated : 14-1-1988

The specialisation viz: Comput Science/Algebra of the post of Read in University Department of Mathemati (Sr. No. 21) be deleted.

The last date for receipt of appl cation only for the above post has bee extended upto 5-3-1988.

Dr. B. P. Sabal
REGISTRAR

JAMIA MILLIA ISLAMIA
JAMIA NAGAR, NEW DELHI-110025

Advt. No. 12/1987-88, Dated : 4-2-1988

Applications on the prescribed form which can be had from the Registrar's Office on any working day between 10 : 00 a.m. and 12 : 00 Noon or by sending a self-addressed and stamped (Re. 1/-) envelope of 10 x 23 cms. are invited alongwith the crossed Indian Postal Order or Bank Draft of Rs. 7/- for posts No. 1 to 12 and Rs. 5/- for post No. 13 (Rs. 2/- for SC/ST candidates irrespective of grade) for the following posts so as to reach the Registrar by **1 : 00 p.m.** on **29-02-1988.**

Ability to teach in Hindustani, particularly Urdu is a desirable qualification for teaching posts and adequate knowledge of Urdu and Hindi is essential for non-teaching posts.

D A., C.C.A., H.R.A., P.F., Gratuity, Pension and other benefits will be given as per Jamia rules.

Relaxation in any of the qualifications may be made on the recommendation of the Selection Committee in exceptional cases.

1. Assistant Registrars (Rs. 700-1600 unrevised).

(1) Good academic record with at least second class (C in the 7 point scale) Master's Degree.

(2) At least 3 years experience in educational administration.

Educational qualifications may be relaxed in case of an exceptionally meritorious internal candidate holding bachelor's degree.

2. One Technician (Chemistry) Rs. 1640-2900 revised.

Essential

3 years Diploma in Electronics.

OR

Graduate with Chemistry at least 10 years experience in Sr. Lab. Assistant in the Chemistry Laboratory of a University or comparable institution of which at least 2 years in a post-graduation laboratory.

Desirable

Experience of handling UV—visible Spectro-Photometer, I.R. NMR and X-rays.

3. One Technician (Physics) Rs. 1640-2900 revised.

Essential

Diploma in Electronics/Elect. Engg./Mech. Engg. with experience of handling Physics Lab. equipment, repair and maintenance of Lab. equipment, in particular electronic equipment desirable.

OR

Graduate with Physics at least 10 years experience as Sr. Lab. Assistant in the Physics Laboratory of a University or comparable institution of which at least 2 years in a post-graduation laboratory.

4. Two Technicians (Biological Sciences) Rs. 1640-2900 revised.

(1) **Essential :** M.Sc. Zoology. **Desirable :** Expertise in dissection work and preparations of slides.

(2) **Essential :** M.Sc. Botany. **Desirable :** Expertise in the maintenance of culture room, and herbarium.

OR

Graduate with Biology and at least 10 years experience as Sr. Lab. Assistant in the Biology Laboratory of a University or comparable institution of which at least 2 years in a post-graduation laboratory.

5. One Cartographer (Rs. 1640-2900 revised).

Essential

B.A./B.A. (Hons.) with Geography and P.G. Diploma in Cartography, at least with second division.

OR

M.S./M.Sc. in Geography with Mathematical Geography at least with second division.

OR

Graduate with Geography and at least 10 years experience as Sr. Lab. Assistant in a Geography Lab. in a University or a comparable institution of which at least 2 years in a post-graduation laboratory.

6. One Survey Assistant (Geography) Rs. 1640-2900 revised.

(1) M.A./M.Sc. in Geography with at least second division.

(2) 2 years experience of handling survey instruments.

7. One Instructor in Mechanical Engineering (Heat Engine & Mechanical Drawing) Rs. 1640-2900 revised.

(i) Diploma in concerned branch of Engineering.

(ii) Two years' teaching/professional experience.

8. One Workshop Instructor in Electrical & Electronics (Rs. 1400-2600 revised).

Matric or Secondary School with Certificate in concerned trade awarded by NCTVT and three years experience in the concerned trade or Matric with seven years practical experience in the trade concerned.

9. One Microphotographist (Rs. 1400-2300 revised).

Degree in Science with Diploma in Photography or reprography from the National Archives of India.

10. Junior Engineers in Civil and Electrical (Rs. 1400-2300 revised).

(1) Certificate of 3 years' Diploma in Civil/Electrical Engineering from the recognised institution.

(2) Minimum two years field experience.

(3) Working knowledge of Urdu, Hindi & English essential.

11. Two Store Keepers (Rs. 1200-2040 revised) one each in Chemistry and Biological Sciences.

B. Sc. with Chemistry/Biological Sciences Diploma in Store Keeping or 3 years experience of Store-Keeping

12. One Steno-typist (Hindi) Rs. 1200-2040 revised.

Matriculate with proficiency in typing with a speed of about 35 w.p.m. and proficiency in short-hand with a speed of about 80 w.p.m.

13. Drivers (Rs. 950-1500 revised).

(a) A valid licence as a Driver.

(b) Professional skill in driving and motor mechanics.

Desirable

Adequate knowledge of Urdu and Hindi.

Note : (1) Candidates who have already applied for the posts of Asstt. Registrar (Advt. No. 2/1983-84); Technicians (Chem., Physics, Bio-Scs.), Cartographer, Survey Asstt., Storekeeper——(Chem., Bio-Scs.) Advt. No. 5/1986-87 and Driver (Advt. No. 6/1985-86) need not apply again. They may, however, submit the additional information, if any, to the undersigned stating the post, applied for, before the last date mentioned above.

(2) 12.5% non-teaching posts shall be filled from amongst members of the Scheduled Castes and 5% from amongst the members of the Scheduled Tribes.

(3) The number of vacancies given in the advertisement above are liable to be changed without notice by the Jamia.

Khwaja M. Shahid
REGISTRAR

PANJAB UNIVERSITY
CHANDIGARH
(Advt. No. 2/88)

Applications are invited for the following posts so as to reach the Registrar, Panjab University, Chandigarh along with postal orders of Rs. 10/- by **29.2.1988.** Fourteen days extra time is permissible to persons who have to submit their applications from abroad. (All the posts are at present in the old grades which are likely to be revised soon).

1. **Professors :** Rs. 1500-60-1800-100-2000-125/2-2500

Ancient Indian History, Culture & Archaeology-1; French-1; Gandhian Studies-1; Kalidasa Professor in Sanskrit-1; Lajpat Rai Professor in Political Science-1; Philosophy-1; History-1; Computer Science-1.

2. **Readers :** Rs. 1200-50-1300-60-1900

Ancient Indian History, Culture & Arch.-1 (Temp. but likely to continue); Chinese-1 (Deptt. of Central Asian Studies); German-1; Law-1 (Temp. but likely to continue); Labour Law-1; Punjabi-2; Philosophy-5; Physical Education-2; Sanskrit-1; Urdu-2; Sociology-2 (one permanent and one temporary); Music (Instrumental)-1; French-1; Public Admn.-1; Computer Science-4.

3. **Lecturers :** 700-40-1100-50-1600

Ancient Indian History, Culture & Arch.-1; English-1 (Temp. but likely to continue); History-2 (Temp. but likely to continue); Philosophy-2; Sanskrit-2; Punjabi-2 (one permanent & one temporary but likely to continue); Punjabi Lexicography Unit-2; History of Art-1 (Deptt. of Fine Arts); Law-3; Folk & Punjabi Drama-1 (Deptt. of Indian Theatre); Music-3 (Vocal-2; Instrumental-1); Computer Science-1.

4. **Trained Instructor in Drama Performing Arts-1 :** Rs. 700-40-1100-50-1600. (Deptt. of Indian Theatre)

5. **Research Scholars :** Rs. 800/- p.m. (fixed) with an annual contingent grant of Rs. 3000/-.

Ancient Indian History, Culture & Arch.-1; Central Asian Studies-1; Economics-1; Fine Arts-1; Gandhian Studies-1; Law-1; Physical Education-1; Political Science-1.

6. **Research Fellows :** Rs. 800/- p.m. (fixed) with an annual contingent grant of Rs. 3,000/-.
Gandhian Studies-2.

7. **Technical Assistant—Grade II-2** (Centre for Computer Science & Applications) : Rs. 825-25-850-30-1000-EB-40-1200-EB-50-1400-60-1580. (Revised).

The candidates who have already applied for the posts of Readers in Sociology in response to Advertisement, No. 2/87, need not apply again. Their previous applications will be considered.

NOTE : 1. The Vice-Chancellor could place before the Selection Committee names of suitable persons for its consideration along with the applications received in response to the advertisement.

2. It is not obligatory on the part of the University to call for interview every candidate who possesses the essential qualifications.

3. The number of vacancies may change.

4. The University may also prepare panels of suitable candidates for appointment against vacancies occurring within a specified period.

10% of the Scholarships/Fellowships will be reserved for Scheduled Castes and Scheduled Tribes candidates provided they fulfil the minimum qualifications laid down for the award of such Scholarships/Fellowships. In case qualified candidates are not available the reserved Scholarships/Fellowships wi be treated as unreserved. **The candidate for Scholarships/Fellowships whose result for the qualifying examinations are no declared by the closing date, may also apply. However, they must intimate their results (if otherwise eligible) to the concerned Department before the date fixed for selection.**

Candidates for the posts of Professors and Readers who do not possess a dectoral degree are required to submit 10 typed/cyclostyled copies of brief resume of their published work. The candidate has the option to fill this form in all respects on both sides and to attach 9 photostat copies thereof. The candidates are also required to attach ten copies of the list of their research publications with their 'Summary Biodata'.

15% posts of Lecturers will be reserved for the members of the Scheduled Castes and 7½% for the members of the Scheduled Tribes, but these will be treated as unreserved if no suitable Scheduled Castes/Scheduled Tribes applicant is available.

Persons already in service must route their applications through proper channel. They may, however, send an advance copy of their application, on the prescribed proforma, direct to the University. They will be allowed to present themselves for interview only on the production of a 'No Objection Certificate' from their employers. Incomplete forms will not be considered. Forms received after the due date are liable to be rejected unless the Vice-Chancellor condones the delay by a special order. Attested copies of certificates in support of qualifications for Matriculation/School Leaving, Graduation, Post-graduation examination as also for Doctorate degree, be attached to the application. Canvassing in any form will disqualify the candidate.

Application forms, along with detailed qualifications can be obtained from the Cashier, Panjab University, Chandigarh, personally, on payment of Rs. 2/- or by making a written request to the Assistant Registrar (Estt.), Panjab University, Chandigarh, accompanied by a self addressed stamped (worth Rs. 3.40) envelope of 23 x 10 cm and postal order of Rs. 2/- drawn in favour of the Registrar, Panjab University, Chandigarh.

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University News

ONDAY, FEBRUARY 22, 1988 Rs. 1.50

ASSOCIATION OF INDIAN UNIVERSITIES, NEW DELHI

AIU Stall at the 8th New Delhi World Book Fair attracted regular stream of visitors

The United States Educational Foundation in India

"Fulbright House", 12 Hailey Road, New Delhi-110001

Applications are invited up to **March 15, 1988** from professional social workers, youth leaders and those employed in human service institutions for a 120-days or 12-month program of orientation and work experience in the United States, beginning April 1989. Round-trip travel and maintenance in the U.S will be provided. Selected candidates or their employer will, however, have to contribute $300 as registration fee and program support costs.

An applicant must :

1. be preferably between 23 and 42 years of age on the first day of the calendar year in which application is made;
2. be proficient in English;
3. be a permanent full-time employee on the direct service level in the field of human services; voluntary or honorary workers are not eligible to apply; applicants must return to their present employment after completion of the grant;
4. have a master's degree in Social Work or other professional specialization (e.g., M.A., LL.B., M.Ed.) from an Indian university or qualifications regarded as equivalent thereto, with at least two years full-time paid experience after the receipt of the professional degree for the following areas :
   - Adult Education
   - Aging-direct service; institutional; hospital out-patient; community
   - Alcoholism
   - Child Welfare (including adoptions, foster homes, protective services and institutions)
   - Community Development, Community Organization and neighbourhood work
   - Drug Abuse Programs
   - Family Services (casework, counselling, group work)
   - Job and Vocational Training
   - Mental Health, community centres, hospitals, mental retardation (Teachers and Social Workers)
   - Youth Work

   Or

   have a bachelor's degree followed by a professional degree (e.g. B.Ed., B.S.W., LL.B., B Arch., B.Sc., in Home Science, etc.) with at least four years full-time paid experience after the receipt of the professional degree for the following areas:
   - Urban Planning
   - Criminal Justice (Adult and juvenile corrections, probation and parole rehabilitation)
   - Early Childhood Education
   - Family Planning
   - Health Care (Social Work, hospitals, clinics, community health program, health education, dietetics, counselling and rehabilitation)
   - Legal aid
   - Public Law
   - Rehabilitation of the Handicapped, Blind, Deaf, Physically Handicapped
   - Special Education, Developmentally Disabled, Emotionally Disturbed, Physically Handicapped
   - Vocational Rehabilitation
5. agree to return to India on completion of the program and be ready to work in their agencies at the present salary scale for at least one year and/or on such terms and conditions as required by the agencies;
6. be in India at the time of application and interview.

Only persons holding **permanent** positions are eligible to apply. For details and preliminary application forms, please write to the relevant office of USEFI, giving details of age, class and percentage of marks of all university examinations taken and present position with a stamped (2 Rs. self-addressed envelope, size 23 cm x 10 cm.

1. **U.S. Educational Foundation in India**
   "Sundeep", 4 New Marine Lines
   Bombay-400 020
2. **U.S. Educational Foundation in India**
   Flat 2, Park Mansions
   57 Park Street
   Calcutta 700 016
3. **U.S. Educational Foundation in India**
   12 Hailey Road,
   New Delhi 110 001
4. **U.S. Educational Foundation in India**
   American Consulate Building
   Mount Road
   Madras 600 006

UNIVERSITY NEWS

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Editor :
SUTINDER SINGH

R. I., MYS

Religion and Higher Education

T.S. Sodhi*

Education can have many a aim i.e. knowledge, occupational perfection, emotional maturation, personality development, socialisation, moral development, spiritual development, etc. etc. Moreover, aims of education have been changing with the passage of time in different societies. Out of the cities in ancient Greece, in one i.e. Sparta, the main aim of education was to make good soldiers, while in the other i.e. Athens, education gave more attention to democratic values of life. In Rome, the stress was more on the creation of welfare state than on the development of the individual. During Nepoleon's times, in France, the aim of education was the development of ethical values, within the framework of Christianity with an additional aim of loyalty to the head of the state. In U.S.A., during the first world war, education was meant to give moral and spiritual training to those who were to guide the destiny of the nation in the days to come. In U.S.S.R. the aim of education is the cultivation of Marxian consciousness. During Mao Tse Tung times, in China, the emphasis on education was to remove all traces of feudalistic and capitalistic values. However, it seems that development of personality and character, in restricted terms, continued to be of permanent value in all the educational systems. In India, during olden times, Brahmin education laid emphasis upon salvation or self-realisation. With the help of religion; under Buddhist influence 'satya & ahimsa' were fundamentals for education; during Muslim times schools taught to lead a pious and dutiful life; during the British period, the motive of educational system was more political so as to create a class of persons who were Indians in blood and colour, but English in tastes, morals and intellect. However, in free India, Kothari Commission wanted education to be related to modernisation, productivity and cultivation of social and moral values. A peep into the aims of education reveals that in India spiritual development occupied a respectable position in one form or the other. It is yet another question that it was done with or without the help of religion. The historical fact is that in India, it was done mostly with the help of religion and different religions placed emphasis upon different aspects of life.

What is Religion ?

In accordance with Chambers' Twentieth Century Dictionary, "Religion is belief in, recognition of, or an awakening sense of a higher unseen controlling power or powers, with the emotion and morality connected therewith ; rites or worship ; a system of such belief or worship; devoted fidelity; monastic life; a monastic order". Thus religion is the belief in, recognition of or awakening sense of a higher unseen controlling power or powers. This also makes a man enlightened. However, a man can become knowledgeable even without it and create things like Atom and Hydrogen bombs, which may bring the end of the world. In other words, one can become wiser even without religion and development of spiritual values. He can become a scientist with a strong value system or without any value system.

**Reader, Department of Education & Community Service, Punjabi University, Patiala.*

The Upanishadas laid down "May it (the knowledge of Brahman) project us together: May it nourish us together! May we together acquire energy (through our study) and may our study make us effulgent! May we not hate each other! Om'! Peace! Peace! Peace". This kind of knowledge, however can only be gained with the education of the spirit which fall within the realm of religion and leads to salvation. About such developments, The Bhagavad Gita laid down "Verily there exists nothing in the world purifying like knowledge. Even if thou be the most sinful amongst men, yet by the gift of knowledge alone thou shall go across all sins. As blazing fire reduces wood into ashes, so does the fire of knowledge reduce all Karma to ashes. I shall tell thee that supreme knowledge having known which the sages have attained the highest perfection". Similarly, about such a knowledge the Holy Koran laid down, "Read in the Name of God who creates, who creates men from a clot of blood. Read, and thy Lord is most generous. He, it is who taught man, What he knew not. He is who made for you the ears, the eyes and the heart to acquire knowledge. He created man and taught him expression". In line with it, Muslim scholars who attended the first world Conference in Muslim Education decided in 1977, "Education should aim at the balanced growth of the total personality of man through the trainings of man's spirit, intellect, the rational self, feeling and bodily senses. Education should, therefore, cater to the growth of man in all its aspects; spiritual, intellectual, imaginative, physical, scientific, linguistic, both individually and collectively, and motivate all these aspects towards goodness and attainment of perfection. The ultimate aim of Muslim education lies in the realisation of complete submission to Allah on the level of individual, the community and the humanity at large".

In the same way, Christ said, "Lay not up for yourself treasures upon earth, where moth and rust doth corrupt and where thiefs break through and steal. But lay up for yourself treasures in Heaven, where neither moth nor rust doth corrupt and where thiefs do not break through and steal. For where your treasure is, there will your heart be also. Sell all that thou hast and distribute unto the poor, and thou shall have treasure in Heaven. For what is a man perfected if he shall gain the whole world, and lose his own soul". National Council of Churches of Christ USA laid down about Christian education: "The objective of christian education is to help persons to be aware of God's self disclosure and seeking love in Jesus Christ, and to respond in faith and love, to the end that they may know who they are and what their human situation means, grow as sons of God rooted in the Christ community, live in the spirit of God in every relationship, fulfil their common discipleship in the world, and abide in the Christian hope".

Similar are the thoughts of Guru Nanak who said:

"The God-man utters the unutterable,
  becoming wise in the Wisdom.
He practises righteousness living in the
  midst of the family
He contemplates his Lord with Love and the heart,
And attains to God through (pure) conduct
  and the Word by Guru's Grace.
He is pierced through with the Word and,
  himself knowing, makes others to know.
And stilling his ego, he Meeges in God".

All this makes it clear that religion has more concern with the development of spirit than any other aspect of the personality. If it is concerned with the moral, ethical, aesthetic or even cultural sides of the personality, then these are subordinated to the spirit. There are ways and means to elevate the spirit. Different religions have shown the paths to this goal, which are almost identical. Anyway, our present system of education, has to a greater extent, failed to reach the development of spirit. It has ended at the lower level as has been shown in Figure 1.

Religion and Education

One can see that the aims of education and religion are identical so far as the development of spirit is concerned. However, religion always places the development of other faculties of man i.e. emotions and intellect in a subordinate position to it, whereas these faculties change their position in the hierarchy in all other types of education. For religion all knowledge is transcendental where as other schools of thought of educational philosophies, look into it from different angles. However, a common link between education and religion has been seen by almost all religions. Jesus said, "Be Ye therefore perfect even as your father which is in Heaven is perfect". Guru Nanak said, "Truth is great, but still greater is truthful living". Koran laid down, "Those who strive hardly in Godly path will certainly be guided by the Divine". Buddha wrote, "Ills never befall him, who clings not mind and body and is passionless". Gita emphasises, "He by whom the world is not agitated and who cannot be agitated by the world, who is freed from joy, envy, fear and anxiety—he is dear to me". Thus the fact is that all those who were religious were also educated and they established a link between the two. For them all religion was education. Thus, they were in favour of religious education. In this regard, Rousseau had said that object of education is not to make soldiers, magistrates or priests, but to make man and if such an education results in becoming a better citizen such an outcome is to be considered as a by-product of aiming at the improvement of his inner worth or an end in itself. However, there may be some educationists who do not believe that religion and education have the same aims. They may believe that moral, ethical, spiritual and cultural values can best be developed with the secular education. At times such an ideology becomes handy to multireligious societies like USA and India as many unhappy happenings have been experienced by them, which they attribute to religion, even when the fact remains that these had taken place because of the exploitation of religion. In India, it is laid down in the constitution, that religious education will not be imparted in the educational institutions where public funds have been invested. However, now the question being posed by those who have faith in religious education, is that during the last forty years when education has been developed and expanded without religion we have inbreeded more infightings, more degradations, more crimes and more corruption. The political system is dismal. The businessmen, the agriculturists, the bureaucrats, the politicians and so much so that even the teachers have become corrupt. Perhaps, there has never been so much of corruption in India, as is found today. Thus, even if it is admitted that religious education was harmful, more harm has been done by secular education to the masses. The thought is now again gaining ground that religious education needs to be introduced. It may apply some balm to the wounds of nation which has become so corrupt that people are losing faith in its capacity to keep India united. In many States, it is not the government which is ruling, it is the police which rules. Sri Prakaha Committee on Religious Education has chalked out the details for the school programme. We are mainly concerned in this paper with the programme of religious education in the system of higher education.

Place of Religion in Higher Education

It needs to be clearly understood that religion is not a panacea, that it will cure all the ills. However, if properly taught, it may help solve many of our problems. One of the objections to the introduction of religious education is the constitutional provision which stops us to do so. This can easily be done away with an amendment as our constitution has already been amended 57 times by now. It was perhaps why that all the education commissions i.e. University Grants Commission, Secondary Education Commission and Kothari Commission, had suggested and used the word moral education in place of religious education. The fact is that both types of education may or may not coincide with each other. Moral education needs to be looked from the point of view of the sanction of society when religious education will have the sanction of religion. In order to understand it in a better way we may try to know the hierarchy of values in Figure 1.

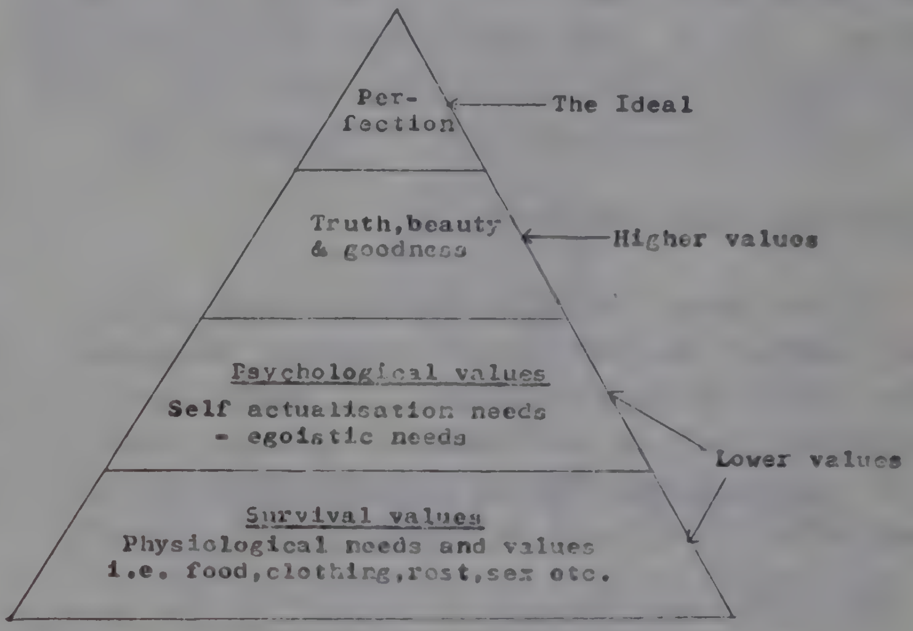

Fig. 1

The lowest are the survival values, which are also a must. If properly achieved, these can lead to higher values. However, many live only at this level. This level is common both in man and animals. Similarly higher than this are the psychological values, which again, if properly cultivated may lead to higher values. There may be very many who are developed only upto this level, which is a shade above the animal level. However, these too are values of a lower type. The higher values, when cultivated lead to ideal self i.e. salvation or mukti or heaven. It is also a fact that some end up with these values. However, if proper constraints are not applied the man is lost only in survival and psychological values. Similarly, one may be lost in higher values and may not achieve spiritual development and may end with moral development. All spiritual education is moral education, whereas moral education may or may not be spiritual. Some people argue that spirit can be developed with secular education. One cannot say that it is impossible but the possibility is remote. Religious education is, in fact, the royal road leading to the achievement of higher values and perfection. The objection of multi-religious society can well be settled by peeping into the value system and putting them in a scheme and hierarchy that differences are shuned and similarities are glorified. We have the model of the educational system of U.K., which solved many of her problems of discipline and development by teaching religion in schools as laid down in the Education Act of 1944. In fact, the remedy of our social, cultural, administrative, political, educational and development ills seems to lay in religious education. It may not solve all the problems, it is expected that it will help to a considerable extent. However, the way it was in existence before the partition may create more problems than solving, if each denominational institute teaches its own religion. In such a system the emphasis is on the glorification of one's own religion in comparison with others. This approach has already played a havoc with our society and is not to be appreciated. We will have to find ways and means to introduce it in a systematic and scientific way.

Introducing Religious Education

We can learn a lot from the West where comparative religion programmes or religious education is often given in secular schools i.e. public as well as denominational, on the basis of agreed syllabii in U.K., Australia, the Federal Republic of Germany and Sweden keeping in view the following two principles :

(a) Religious education is required to be taught in all the schools.

(b) They have varied religious and non-religious groups represented in the society with enough adherents in the major groups to threaten political disorder if a single religious doctrine was imposed on the students in schools.

During the Second World War, many of the ills of juvenile type, disturbed the value system of that society which was corrected to a considerable extent by introducing religious education in schools by the Education Act of 1944. In U.S.A. and Canada, the hippy movement, to a large extent is due to the lack of religious faith or one may say due to the gap created in the intellectual and spiritual development, by their total educational system.

We can draw a cue from it and introduce comparative religious education as a subject of study at undergraduate level. At the first instance it should be an optional subject to be taught only by those who have their M. Phil. or Ph. D. degrees in Comparative Religion. Departments of Comparative Religion be established in all the universities in which equal emphasis should be given to all the religions.

One thing more to be taken care of is that religious education needs to be introduced not only in the formal system of education, but in non-formal system as well as informal system also and ways and means worked out so that religious conflicts be avoided. By and by efforts be made to give command of religious places of worship, to only highly qualified persons and not to half baked persons knowing single religion. All such teachers as well as preachers be enlightened with the knowledge of other religions.

1. **Departments of Comparative Religion** : In every campus the Department of Comparative Religion should be so active that it should not only do research and find out ways and means to build up a common platform for all the religions, but do the extension work also in such a way that it should affect not only the persons in the department but outside the department also. The important days like birthdays and martyrdom days should be celebrated so that the narrow values and parochial thinking is done away with. All this is to be organised in such a way that broader and higher values, leading to perfection are established. For example, it needs to be made clear to all that Guru Gobind Singh never fought against Muslims but he did so against oppression and tyranny. It was a matter of chance that India was being ruled by Muslims at that time and most of such actions were done by them. However, there are instances that when tyranny came from Hindu kingdoms of hills, he opposed that also and waged a war against them.

2. **Quality Literature** : Universities and other bodies of academic nature should produce high quality literature i.e. books and journals on comparative religious education and libraries should be enriched with such material. The government should give liberal grants for the production and improvement of such literature.

3. **Daily Prayer** : Every institute of higher education should start with a prayer everyday and attendance should be compulsory. However, the programme should be made so interesting that all should love to attend it.

4. **Academic Courses** : Varied types of certificate, diploma and degree courses in comparative religion should be started in correspondence courses, open universities, comparative religion departments and departments of education, philosophy and sociology so that the insight is developed to aim at spirit along with morals.

5. **Multimedia Approach** : All techniques of non-formal education i.e. T.V. radio, libraries, films, film

strips and video libraries should be exploited to spread the message of comparative religion. It is heartening that the programme entitled 'Ramayana' being telecast by Delhi Doordarshan has earned respectability among the masses. Such programmes need to be encouraged.

6. **Teaching and Evaluation** : The scheme of teaching religion in institutions of higher learning by arranging morning classes, evening classes and sandwich programmes be encourgaged. However, the evaluation system be different. It should aim at value development rather than getting marks in the examination.

7. **Participatory Sermons and Study Groups** : Another innovative method could be in which more active learning takes place. It can be the participatory sermon in which the students may respond to the questions posed by the teacher of religion during the sermon. It may take the shape of teacher/student dialogue during the sermon or may follow the sermon as an open discussion, debate or panel discussion.

8. **Student Centred Projects** : The areas of interests and problems of the students at different stages of education and in different disciplines be identified. On this basis the teacher can formulate religious education projects by identify passages from different religious scriptures and also stories of religious leaders, saints and Bhagats so that conflicts in the minds of the students is resolved. This technique is mostly used in Sweden.

9. **Social Action Programme** : Social service is one of the essential components of religious education. This can effectively be combined with the teaching of religion in four ways :

(a) Classes can be held in the places of religious worship or colleges and universities but taught in a new way i.e. cognitive learning.
(b) Social service as is given in Mandirs, Gurdwaras and Churches be popularised.
(c) Small intimate discussion groups (affective learning) be formed.
(d) Participation in issue-oriented movements (action involving learning) be encouraged. Schemes like NCC, NSS and Nehru Yuvak Kendras be made more effective by giving them religious colour.

10. **Dramatics** : These have since long been used in India for the celebration of Dussehra, Diwali etc. It is an effective way to teach religion. However, its traditional form can be creative dramatics, role playing, socio-drama and psycho-drama. In each of these the actors spontaneously devise their own speeches and actions in response to the behaviour of others in the play. Such dramatic forms can reflect daily life and thereby furnish the actors practice in ways of responding to real life decision-making demands.

11. **Multi-media Approach** : Examples could be discussion session, filmed interviews with important religious personalities, position illustrating personal and social issues, filmstrips and motion pictures. A Dutch based inter film organisation furnishes information about available films and ways in which these can be used in religious instruction.

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12. **Radio and Television** : In India and abroad, both radio and T.V. are being used to educate the masses. However, there is a need for improvement so that it could be put to innovative and effective use. In USA during 1981 there were 36 television stations maintaining full time religious schedules, with some stations operating 24 hours a day. In India, it is being done on T.V. less frequently. However, radio is doing it in a more effective way. AIR Jullundur relays Gurbani every morning and Gurbani Vichar programme every evening.

Educational Personnel

Throughout the world religious education instructors are more diverse in their qualifications than are instructors teaching secular subjects. Teachers of religion range in background from those with advanced university degrees in theology and in teaching methodology to others who have had no teacher training and who held only a slight knowledge of religion. There may be diversified reasons for that in different societies. For example, in Netherlands lay persons teach in Sunday schools, regulars classroom teachers teach religion in primary schools, and clergymen or theologically trained laymen teach religion in secondary schools. There are different traditions of giving religious education with different religious groups in India. However, on the whole those who do religious teaching are not degree holders, but laymen having some knowledge of their own religion only. This is, in fact, the main cause of misdelivery of goods in the programme of religious education in India. In order to organise it on firm footings, first of all, comparative Religion Departments will have to be established in all the universities and the curriculum so framed that there is little chance of ideological clashes or neglects or misinterpretations. These departments should have not only M.A. classes but M.Phil and Ph.D. programmes also. Only those who have M.Phil or Ph.D. degrees should be allowed to teach comparative religion in college and universities.

Conclusion

We have, now for about 40 years, lived in a society which has no religious education programme in schools and colleges in a formal way. The result is clearly before us. We are leading towards intellectual development but moral, legal, ethical, spiritual and social degradation. The society is full of corruption. Not to talk of politics and bureaucracy, even teachers, doctors and so much so that clargymen are corrupt. The prices are rising daily, hypocrisy is on the increase, adulteration is the order of the day and even medicines are being adulterated. Less said the better for the social scene of India. In many States, there are disturbances and administration is reduced to police states. So much so that even places of worship have been used for political purposes without any ethical standards. The administration is so illogical that they attribute these features to religion and put all the blames to it, even when there is little chance of their being true. The situation seems to be similar to that of Guru Nanak days about which he has said :

> "The officers are corrupt, the kings are butchers. The religion is found nowhere. Falsehood is ruling and the moon of truth is visible nowhere".

The present education is leading us nowhere. The only way to save the Indian society from further deterioration is to introduce comparative religious education in schools, colleges and universities and to make a web of it in non-formal channels of education. However, caution will have to be exercised that real intellectuals with broader outlooks and higher degrees teach it so as to avoid the unpleasant happening which could to a greater extent be attributed to those who handled it without enrichment of knowledge of other religions. □

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Frontiers of Science and Technology

The Indian Context

Prof. C.N.R. Rao, Director, Indian Institute of Science, Bangalore, delivered the Presidential Address at the Platinum Jubilee Session of the Indian Science Congress held at University of Poona. In a wide-ranging address charting developments in Chemistry, Advance Technology Materials and other frontier areas; discussing issues in higher science education and manpower training; and touching on the role of scientists, teachers, the Indian Science Congress Association and the Government in the development of science and scientific temper in the country' Prof. Rao observed, "We have to be leaders in science and technology to show that even poor countries of the world have much to contribute to society in the modern world and that science is not the prerogative of only the advanced and rich nations". We are pleased to publish excerpts of this very thought provoking address for the benefit of our readers.

Introduction

The topic is obviously important since we in India have decided to take the path of science and technology to ensure development of our society. We have no choice other than to be abreast with the most up-to-date developments in science and technology. We would, have to compete at least in some of the areas with the rest of the world, and at the same time identify those areas of special concern to us where, through the application of science and technology, we can make a signal contribution in solving the pressing problems, related to the needs of the common man. There is a third aspect of science and technology, where by virtue of certain geographical and other natural advantages, we would have to be world leaders; beneficiation of solar energy may represent one such area.

Some may feel that it is not necessary to worry about the frontiers of science and technology, if our main concern is to alleviate poverty and human suffering. But we should not forget that to take care of the health of the poorest amongst us, we require science and technology; to grow the food we require, we have to apply advanced science and technology. In order to find substitutes to our depleting natural resources and also to discover newer types of materials required for construction, electronics and for alternate sources of energy, we require advanced science and technology. It is for this reason that I believe that the frontiers of science and technology are of direct relevance to even the poorest country in the world. Particularly in a large ountry such as ours with a large population, we cannot possibly afford to depend on advances in science and technology obtained elsewhere and depend on other countries to provide the help we need.

Smaller countries would have small requirements; they would need small quantities of food, fertilizers, medicines and most materials. We, on the other hand, require large quantities of anything that we can think of. We can only compare ourselves to the larger countries of the world in terms of our needs. This places on us a special responsibility not only to our society but to science and technology itself. We have to be leaders in science and technology to show that even poor countries of the world have much to contribute to society in the modern world and that science is not the prerogative of only the advanced and rich nations. Unless we do so, our life will continue to be dominated by outside influences, and this would be very bad for us.

Applied Versus Basic Research

It would be appropriate here to comment on the unnecessary dichotomy between applied and basic research that seems to plague our scientific efforts. Many people have felt that we need to do mainly or only applied research in a developing country such as ours. I feel that this would be a poor way of doing science. I suggest that for sake of science and technology in the country, we stop using the terms "applied" and "basic" research from now on. Basic research is driven mainly by the aspirations of scientists who make discoveries; we could classify such research as discovery-driven research. There is the other kind of research, which we may call society-driven (or market-driven) research. Scientific breakthroughs come rarely in discovery-driven research, but once made, they lead to major innovations and quantum leaps in science and technology. Such research requires time, patience, perseverance and dedication, and results cannot always be predicted. The discovery of the electron is an old example of discovery-driven research. Lasers constitute a modern example of discovery-driven research. When the laser was first discovered, it was not expected to have great applications. Today, lasers are required in engineering, medicine and many other spheres.

Whether a country is rich or poor, lasers will be used in some way or the other. Once a major discovery is made, a considerable amount of applied research will have to be carried out to see that the result of the discovery become useful or lead to innovation.

Let us look at what I called market-driven or society-driven research. Here, the research is motivated by societal forces demanding certain products or innovations. For example, there may be a need for a specific type of high strength polymer or a special variety of hard material. Although the objectives are clearly spelled out, in order to make such a material one may have to carry out considerable fundamental research. Immaterial of whether research is discovery-driven or society-driven, it may require fundamental as well as applied work in order to give rise to innovations. It is only in limited instances that ready solutions to short-range problems are found by simply applying known principles or techniques. Applied and basic research are equally important components, and both required a high quality of mind. We cannot possibly have second-rate scientists for developmental work and first-rate scientists for fundamental work.

Let us look at another example. Today one can cover a given surface of a metal with a diamond coating. The principles are known. But to do this in the laboratory, it is not very straightforward. We have to understand the fundamental processes involved and only when the various parameters involved in the technique are mastered, can the application scientist or engineer think of applications. A similar situation holds for the high-temperature superconductors. We have discovered materials which become superconducting around 100 K. If this has to reach the common man in terms of innovations in electronics, transportation or power transmission, the effort required is considerable. It may take years of hard, innovative research to obtain meaningful results.

The Global Scenario

Today, science and technology are advancing at an extremely rapid pace. The pace is so fast indeed that we have to keep galloping just to remain stationary. The explosion of scientific knowledge is superexponential and to fully keep up with the literature is almost impossible. Under these conditions, can we compete meaningfully in the frontiers of science and technology from India ? Of course, there are many impediments due to the poor infrastructure, shortage of talented workers, oppressive bureaucratic practices and inadequate information systems. In spite of such limitations, we still have a chance, if we become more optimistic and approach problems with dedication. This does not mean that it is not going to be difficult to beat the pressures to buy foreign technology indiscriminately or to get world recognition in basic science. Even if one produces laboratory results of a quality comparable to the best, the world may not rightaway give the due recognition. The main point is that we just cannot afford to give up.

The view of India in the world has changed in the last few years. Most countries in the world (including the advanced ones) consider India to be a fairly advanced country in science and technology. This is not altogether a happy situation. This means that we can no longer behave like a "poor" country in science and technology. We have to really become good and competitive, at least to live up to this reputation. Otherwise, I am afraid that the reputation may not turn out to be a blessing and instead may become a burden.

Frontiers of Relevance

In addition to the obvious areas of Science and Technology, related to the pressing problems faced by the country in food, health and housing, the three areas of greatest importance for development are energy, transportation and communication. In these areas, we will have to do proper planning for the next decade or two and carry out all those aspects of research and development that are crucial to make progress. We are facing an energy crisis which is likely to continue for some years. Without proper communication and transportation, there will be no social integration in the country, which is essential for progress. I shall now talk about some typical frontier areas to illustrate what I mean by relevant research and development of the highest quality. The first area I have chosen is related to my first love, namely, chemistry.

Frontiers of Chemical Science : A Case Study

Chemistry, being a central science, provides the basic understanding that is required to deal with a large variety of needs of our society. Whether it is feeding and clothing our population, tapping new energy sources, improving health and fighting disease or finding new substitutes for the dwindling natural resources, chemistry plays a crucial role. Fundamental research in chemistry will be of great help to the future generations in coping with new and unexpected proplems and in answering their needs. Chemistry has been developing interfaces with other science such as physics and biology at such a phenomenal pace that the scope and structure of the subject keep changing continually. It is important to be on constant vigil not to miss opportunities to contribute to new directions and to apply chemical knowledge to answer newer challenges or obtain better solutions to problems.

The subject has grown explosively in the last few years. Chemists have synthesised over 8 million compounds. The doubling time in discovering new chemical compounds is now hardly 10 years, compared to 40 years in the 1940's thanks to new diagnostic tools as well as better unifying theoretical models.

Some of the most important frontiers of chemistry today are synthesis, chemical dynamics, catalysis, theory and computer simulation, chemistry of life processes and new materials. Let me briefly touch on some important aspects of each of these frontier aspects.

The ability of chemists to design and invent new families of organic and inorganic compounds has surpassed all expectations and the gap separating organic and inorganic chemistry is decreasing. Metallo-organic compounds of controlled reactivity, molecules with clusters of metal atoms, molecules mimicking biological systems are typical of interesting synthetic aspects today. Novel kinds of agricultural chemicals (including sex-attractants and insecticides) and those required for the health of animals (including humans) continue to be of great relevance.

Our understanding of chemical dynamics has increased in the last few years and is beginning to uncover the intricate mechanisms of complex reactions. There is considerable scope to investigate the chemistry of the atmosphere, photochemical transformations and the chemistry of propellants. Today we are able to examine very fast reactions occurring even in picoseconds. Laser chemistry and plasma chemistry and chemistry of materials under extreme conditions provide real challenges.

Catalysis has emerged to become much more important today because of our ability to design catalysts better and to "see" surface reactions directly by employing powerful instruments. This area includes not only heterogeneous and homogeneous catalysis, but also electrocatalysis, enzyme catalysis and photocatalysis. The study of surface and interfaces is now an important and integral part of chemistry.

Chemical theory has come of age and is able to predict the structure and behaviour of molecules as well as of large systems. Computer simulation and statistical mechanics are indeed areas of great promise. Computers will play an unprecedented role not only in carrying out marathon calculations on structure and reactivity, but also as storehouses of information which will minimize or eliminate much of routine measurements.

It is only in the last few years that chemistry is being recognised as an essential part of modern materials science. Whether they are materials related to new energy sources or polymers for use as structural materials, chemistry plays a key role. Let us not forget that chemistry is itself a materials science. The new high-temperature oxide superconductors are highly complex chemical systems; even making and processing the well-known "silicon chip" involves numerous chemical operations.

The relation between chemistry and biology need not be emphasised. Chemistry gave birth to many new areas of biology, including molecular biology. Much of the efforts in biology and bio-technology have major chemical components.

We need to give priority to work in the different research frontiers of chemistry mentioned earlier. There should be greater support to chemistry from industry. Let us not forget that most of modern industry has a strong chemical base and the progress of advanced countries has been mainly through their chemical industry.

Investment of government in chemistry-based R&D as well as industry (including materials) should be increased commensurate with their importance. Indian chemical industry is hardly 30 years old and is now poised for major growth and it is estimated that investment in this industry during the next 15 years may reach Rs. 700,000 crores or more (excluding down-stream processing industries for elastomers, fibres, plastics etc). It is crucial that we examine our priorities in areas such as fertilizers, petrochemicals, agrochemicals, bulk drugs, polymers, speciality chemicals and biotechnology, taking into account our renewable and non-renewable resource pattern. We have to train better chemists to take up challenging tasks in R&D as well as in education; we are short of talented chemists.

Advanced Technology Materials :
A Crucial Area for Progress

Advanced technology materials have made a tremendous impact on the quality of life of man. The prosperity of a country is almost directly related to the magnitude of use of these materials. In fact, we can employ the usage of advanced technology materials as an index of development; clearly, this index distinguishes the developed from the developing countries. The investment on materials industries in advanced countries in the last few years has been stupendous, the turnover of certain materials reaching astronomical proportions. The fastest growing industry today—and probably the most demanding one as well—is that related to materials. Unfortunately, advanced materials have not entered the markets of India and other developing countries. There is also little or no industrial efforts in this direction. Yet the same materials that have been responsible for the progress made in advanced countries are required to improve the quality of life in our country. After all, better transportation, communication and energy alternatives are the crying needs in India and in almost all the developing countries. Let us briefly review some of the important classes of advanced materials.

Polymers have undoubtedly revolutionized our life style. In the world today, the average per capita consumption is 11 kg (compared to a developing country like India where it is less than one kg). Composites made of plastics or reinforced plastics (FRP) are used widely. In the US, composites are used in transport and aerospace applications to the tune of 26% (compared to 5% in Inda). FRP is used to the tune of 850,000 tons per year in the US and 3,00,000 tons in Japan (compared to 6,000 in India). The use of FRP in automobiles and other modes of transportation is well known. High performance composites made by using strong fibres (C, B or aramid) are important new structural materials for aircraft and space industry. It is possible that future aircraft will use more than 50% of these composites. Automobiles are likely to use these materials in the future. The paramid (Kevlar) fibres (40% lower in density than fibre-glass) have already made a great impact on the aircraft industry. Carbon-carbon composites have also shown good results and increased potentialities.

Our main **energy sources** have been hydroelectric, thermal and atomic. In countries like, India, solar energy is available in plenty and throughout the year. The importance of making of materials for solar energy conversion is therefore obvious. Two means of beneficiating solar energy are photovoltaic or photoelectrochemical. For photovoltaic applications, silicon still remains the most viable material. GaAs and CdS are solar cell materials with special applications. For Photoelectrochemical cells, several oxide and chalcogenide semiconductors have been studied. An economical means of producing H_2 by this route is still not available. Electrochemical photovoltaic cells hold some promise.

Fuel cells (H_2 or CH_3OH) continue to be attractive as energy packages. Stabilized zirconia is a good oxygen solid electrolyte. We are yet to find a good proton conductor for CH_3OH fuel cells.

Hydrogen storage materials have been studied extensively. FeTi and LaNi are two of the candidates for this purpose. **Batteries** (or electrochemical cells) of various kinds have been produced or are being investigated. The most viable ones are still the lead-acid and NiCd batteries. For electric vehicles, the various possibilities are, Pbo_2/Pb, O_2/Zn, O_2/Fe, NiOOH/Fe and NiOOH/Zn. Miniaturized batteries (Ag—button or lithium for example) are being made; lithium intercalation in layered materials ($V_6 O_{13}$ or TiS_2) has proved to be effective for making Li batteries. Intercalation chemistry has indeed become a major area of study in solid state chemistry. Reversible electro-chemical doping of polyacetylene enables fabrication of a rechargeable battery.

Crystalline silicon has formed the backbone of much of **semiconductor electronics**. Its applications in computers and various devices are well known. As mentioned earlier, silicon is the only viable material to-date for photovoltaic energy conversion. Amorphous silicon, specially that doped with group III or V elements, seems to be on the threshold of becoming a good alternative in photovoltaic and other applications. By employing heterojunction structures with layers of amorphous SiC, over 10% efficiency has been achieved in large are structures. A number of II-VI and III-V semiconductors area used in electronic industry. Special mention must be made of GaAs and Al-doped GaAs which give high photovoltaic efficien-cies (> 20%). GaAs doped with III and V group elements are good light emitting diodes for optical communication (e.g. $GaAs_{1-x}P_x$). GaS itself can be made by CVD ($AsCl_3 + Ga$) or by the reaction of AsH with Ga and HCl. Hydrides of group V elements reacting with an organometallic such as $Ga(CH_3)_3$ is another method.

High-temperature **superconductivity** has been a dream of all scientists. This area has suddenly become promising because of the recent discovery of certain oxides of copper which show superconductivity above liquid N_2 temperature.

This is probably the biggest sensation since the discovery of the transistor. It was first found early in 1987 that oxides of the type $La_{2-x}Sr_3(Ba_x)CuO_4$ possessing the K_2NiF_4 structure show superconductivity in the region 20-40K. However, the Y-Ba-Cu oxhides exhibit superconductivity above liquid nitrogen temperature; these oxides are all related to the perovskite structure. There is no doubt that strategies will be developed to produce novel oxides and other materials exhibiting superconductivity at still higher temperatures (possibly at room temperatures). Undoubtedly, solid state chemists will have much to contribute to engineer such materials. Once superconductivity is found to occur at reasonable temperatures, levitation transportation would become practical. Power transmission and development of magnets (for MHD generation) would then be greatly revolutionised. Superconductors will be used widely in electronics (especially in computers).

There is a class of materials called the **ferroics** possessing two or more orientation states or domains which can be switched from one to the other through the application of one or more appropriate forces. These materials include ferroelectric and ferroelastic substances as well. Some of these (e.g., $LiNbO_3$) are important optoelectronic materials. Colour modulation and optical switching are facilitated by ferroelastic materials (e.g. GMo).

There is quite a likelihood that electronics will be replaced, at least partly, by photonics in the not too distant future. Replacement of the electron by the photon has tremendous consequences. Materials development for photonics is an area of great importance. It is noteworthy that methods of synthesis of some of these materials are crucial. Use of organic derivatives as precursors (e.g. oxalates, citrates etc. for the synthesis of PZT and PLZT or even $BaTiO_3$) is an example.

Photonics is likely to have a great impact on the future of computers, communications and laser technologies.

Fibre Communication has revolutionized modern communication practice. Generally, pure silica fibre is used for the purpose (140 megabits per sec. over 30 km distance without use of repeaters). Fibres made of heavy metal fluorides are now attracting considerable attention. For preparing high purity silica, the sol-gel route is used with hydrolysable organic derivatives such as tetraethoxysilane. The light sources used in fibre communication are generally Ga-As type III-V semiconductors (e.g., $Al_xGa_{1-x}As$, $Ga_xIn_{1-x}As_yP_{1-y}$); a variety of such laser materials are available for different types of applications.

The development of samarium-cobalt and related alloys was a major landmark in magnetic materials. Traditionally, ferrite materials have been widely employed in communication industry. In Japan and US alone, hard and soft ferrites are used to the tune of $600 million a year. The newest of the magnetic materials are Fe-Ni-B based amorphous alloys with high permeability, low magnetostriction and high mechanical hardness. The Fe-Nd-B system is the most powerful magnet known hitherto. These as well as the new superconducting materials will undoubtedly usher in a new era in the world of magnetic materials.

Other than the ferrites referred to earlier, a number of advanced ceramic materials are gaining increasing importance. Structural ceramics required for engine systems require high strength, low thermal conductivity, high thermal shock resistance, chemical inertness and other properties. Silicon nitride (Si_3N_4) has turned out to be a good material for high temperature applications; this can be made by many routes, including CVD and reaction bonding.

Sialon obtained by ingenious chemical substitution of Si and N by Al and O respectively is another such material; several modified sialons have also been studied. Toughened zirconia ceramics are used for thermal insulation in turbines etc., because of its low and constant thermal conductivity. Transformation toughened zirconia has also found useful applications. Some of the sensor materials (e.g., stabilizer zirconia is an oxygen sensor) also employ certain ceramic materials, mainly oxidic.

In the key sectors of communication, energy and transportation, almost everything seems to be of high priority. The relative priorities of materials would vary from country to country depending on the state of development. There are, however, some materials which are of immense importance universally—typical of these are the following :

Communication	:	Fibres Ferrites
Energy	:	Solar energy materials (Photovoltaic, PEC, etc.) Batteries Fuel cells
Transportation	:	Composites (FRP, etc.)

Research and development and success related to the above would benefit India greatly. There are some materials where R&D as well as applications will be possible in the near future only with considerable improvement of the infrastructure in science and technology. Typical examples of such materials are :

Superconductors	:	For electronics, power transmission, magnets and transportation
Advanced ceramics	:	For turbines and transportation
High performance composites	:	For automobiles, aircraft and space applications
Optoelectronic materials	:	For photonics

Even in these areas, once the technology becomes feasible, there will be widespread use everywhere, possibly with a time gap between the advanced and the developing countries.

We, in this country, will have to work out our requirements of the various advanced technology materials and keep a vigil on this fast-growing area. It may be advisable to have a national coordinating and monitoring body for R & D in materials.

Other Frontier Areas

We have to examine our priorities in all other frontier areas of physical, biological and earth sciences as well as in engineering and technology, but I shall not touch on these areas since I have no real expertise in them. I shall however mention one area of vital importance to us not only because it represents a frontier but also because we have a chance of being as good as anybody else in the world. It is the area of **Parallel Computing**. With the advent of inexpensive and powerful microprocessors, it has now become feasible to build a computer by inetrconnecting a large number of microprocessors. Such a computer, referred to as a parallel computer, can solve problems requiring intense computing. Parallel computers reaching supercomputer capability can be built at a modest cost. The speed of parallel computers can only be exploited if new algorithms tuned to the structure of these computers are developed. Research and development in this area is in its infancy all over the world and we have a good chance of becoming world leaders in software, with great export potential.

Issues in Higher Science Education

Much of the fundamental science in the country is carried out in our universities, and the state of our universities is becoming worse and worse with time. Citation of the work done in India or of the journals we produce has not been gratifying. Unless we do something about higher science education in our universities, there is little hope that science in our country will prosper. We cannot afford to forget that the future of science and technology will crucially depend on the products of our universities.

There is so much written about higher science education in the country that there is probably little new that one can add. Higher science education today presents a rather discouraging picture. There are serious complaints at all levels about the lack of responsiveness in the system. Academic activities are at a low ebb. Several factors of a complex nature have contributed to the present condition. Some of the factors are related to processes and pressures in our society, and therefore, reflect the social features prevalent in a particular region. However, there are several aspects where planners, administrators and teachers can do much.

We cannot consider the problems and challenges of higher science education without reference to the problems faced in school education. Inculcation of the scientific attitude in students is most essential in the early school years. It is also important that there is a proper vocational stream available at school level so that all students do not rush towards higher science and technical courses at college level. In spite of the various problems we are facing in science education it must be admitted that many good students still come out of our school system, and a good percentage of them do extremely well in scientific and technical professions. However, in a large majority of schools in the country, the quality of training and facilities are inadequate, and we have to bring them up to a reasonable level.

The common problems associated with undergraduate science education are well known. Undergraduate education is concentrated in colleges, many of which are under-equipped, overcrowded and poorly staffed. Laboratory and library facilities are generally inadequate; proper textbooks are not available. The level attained by a B.Sc. in India today is much inferior to that of a graduate in advanced countries. It is at the undergraduate level that there is a sudden gap in the quality of education. While there are some select centres where the quality of postgraduate science education is reasonable, similar undergraduate centres are not available for bright students who want to take up science. Undergraduate curricula are rigid even in the best of places. Combinations such as PCM and CBZ do not provide the necessary breadth or depth. The absence of flexibility has made it impossible for a good student to obtain sound, well-rounded training. For example, a physics student cannot study biology just as a biology student can never study mathematics or physics. We have to make flexible programmes available and ensure that all science students have adequate background in mathematics and biology. At best, we are imparting some information to students, but little knowledge or wisdom. Quoting Elliot, "Where is the wisdom we have lost in knowledge ? Where is the knowledge we have lost in information ?".

All those who take science courses at the undergraduate level are not necessarily going to be scientists. It is, therefore, important that we have at least two streams in science education—one of a general nature and another of a specialised nature (for those who want to be scientists). The absence of such specialised training opportunities is making our undergraduate science education not so meaningful.

In another 15-20 years, undergraduate enrolment may get doubled. Can we even duplicate the present facilities (however poor) ? Selectivity is obviously important.

We have to find ways of tapping the best talent in the country for science and provide the best possible training to talented students in selected institutions. Present efforts in this direction are inadequate.

Many of the problems mentioned with respect to undergraduate science education also hold for postgraduate education. There are too many institutions offering postgraduate education in science. Most of them are under-equipped and poorly staffed. I see no point in producing such a large number of M.Sc. graduates; the number of people trained at the Master's degree level should have some relation to national manpower requirements.

University departments are expected to carry out research. Although some good work has come out of the universities, it would not be wrong to say that most university departments have poor facilities. They are also short of highly qualified and motivated teachers. Now-a-days, research support to individual scientists is quite satisfactory. Institutional infrastructure is generally unsatifactory. Shortage of student accommodation and amenities, poor electricity and water supply are common. Unless the universities have sufficient strength to support higher education and research, the support we may give to individuals or departments would not yield maximum benefit. It is important that universities get more basic bread and butter funding. It should be psosible to give a reasonable percentage of research grants as overheads to universities, plan budgets allocated for science in the educational sector being too meagre for the purpose.

Even in an advanced country like the United States, people are concerned about the decreasing quality of instruments and other facilities even in the major universities in order to carry out advanced research in science and technology. Scientists in Britain are worried about the competitive capacity of their universities. We can imagine how serious our problems are.

We can make a large number of recommendations, but there would be nothing new in many of them. Many such recommendations would cost enormous money and it would be unrealistic to expect all of them to be accepted or executed. Some important action plans, however, would not require much money, but would rather require our determination to improve the quality of education. I list some of them here at the cost of some repetition. Admission to the science specialization stream should be made selective; students in the special stream in undergraduate education must get the best possible science education. A few model undergraduate science institutions should be supported in each state to attract students for science just as IITs and Regional Engineering colleges have been attracting students for engineering education. The facilities and capabilites of certain established major institutions (such as IISc, IITs, TIFR) should not be made responsible for the conduct of undergraduate examinations. Separate examination boards of groups of colleges should conduct these examinations. Textbooks in all subjects (at school and undergraduate levels) should be made available to students. Colleges must have several copies of textbooks in the reserve sections of libraries. Computer facilities and formal training programmes in computing must be made available in each major town or city, if not in each school or college, so that youngsters can get adequate training. Design and fabrication of instruments for teaching and research have to be promoted in a major fashion. Individuals and departments involved in instrumentation activity should get special support and recognition.

In view of the exploding frontiers of knowledge, better ways of training and re-training science teachers will have to be explored. Ways have to be found for attracting better scientists and engineers to the teaching and research profession. Support to select departments under the different programmes of the University Grants Commission should be enhanced. It would be desirable to support research units of outstanding individual workers on a long-term basis.

Manpower Training

We have a great shortage of manpower in many specific sectors of advanced science and technology in the country. This is even true of experimental physics, let alone areas such as computer science, turbomachinery, robotics and other branches of engineering. At the same time, we have a large number of unemployed or underemployed graduates (and even Ph.Ds). This mismatch in manpower training has to be tackled in order that we become competent in science and technology in the next decade. The highly trained manpower required by the year 2000 AD has to be produced now. We should not forget that the training we impart to students is extremely important because the young graduates of today are going to be the senior managers in the next 15 years or so. We in the universities, therefore, have a major responsibility.

Because of the absence of highly skilled manpower in crucial areas of science and technology, we should seriously consider deputing a reasonable number of young scientists abroad for short periods (of a year or less) for training in well-defined areas in properly chosen institutions. We should give them a guarantee that when they return after training, they will have a suitable job with professional challenges.

Role of Scientists

Where are we with respect to the frontiers of science and technology ? Have we done well? Are we world leaders in some areas? Common people ask why we do not have many peaks of excellence in spite of the high investment in science and technology in the last few decades. It is true that we have very few peaks of excellence both in terms of men and in terms of institutions. This is not because of insufficient funds and facilities alone. It is at least partly because of the rather depressing atmosphere that we scientists have created for ourselves while doing science. We easily compromise to mediocrity like in other aspects of life—and mediocrity breeds mediocrity. Tolerance of mediocrity is the biggest killer of good science.

It is true that even when we do good science, it is extremely difficult today to be known for any contribution in science, especially from a country like India. There seems to be an inbuilt prejudice against the work coming from countries like India. However, we cannot accept such a situation and stop trying to do the very best. We have to keep fighting the situation until this country and the scientists here find a place in the sun. We have a few scientists who, in spite of the problems in India, have struggled and fought the situation and have been noticed in the world; the number of such scientists may be small. We often talk of poor facilities, infrastructure, etc., but they alone cannot be responsible for the status of science since even in theoretical areas we have not done as well as we should have. We have had only one Ramanujan. I believe therefore that we have to look into some basic causes responsible for this state of affairs. This can mainly be traced to ourselves, namely, the scientific community. Only we scientists and engineers can usher in excellence in science and technology.

Those of us who are in the latter half of our careers have the responsibility to see that the future is secure for science. We have to encourage the right-minded young people and motivate them properly. We should see that they get the right facilities and encouragement. I am convinced that it is not merely salaries that attract young people to science. Opportunities to do good science and a proper working atmosphere are equally important. I do not think that I would be completely wrong if I say that we senior scientists have not done enough to see that the atmosphere is truly conducive for scientific work. We cannot just blame the government for all ills. When some of us talk discouragingly about science (and scientists) and we ourselves are most of the time depressed, I do not think that young people will get enthused to take up scientific professions. It is much better for them and more lucrative to sell soap than take the hard path of science. In addition to providing the right atmosphere, senior scientists have also to set an example in not compromising to mediocrity in everything they do.

Role of Teachers

Many of us scientists are also teachers. In my own career, I have thoroughly enjoyed teaching undergraduate and postgraduate students. I do not know if I have really taught something to my students, but I know that without them I would have not found my research purposeful. Young people around us not only keep us young and thinking, but also contribute new ideas and hard work. I have no doubt that the young Indian talent has contributed in a significant way to advanced scientific research in many parts of the world.

A teacher's influence on his students lasts for a lifetime. The influence is not limited to scientific activities, but encompasses many aspects of life. This is important since excellence of a person manifests itself not merely in scientific research. What remains in the student's memory and in his character is the stamp of personality of the teacher rather than the repertoir of knowledge. We generally assume that a teacher must be a master of some subject. While that is an essential quality, it is not the criterion that has been responsible for the lasting influence of many a great teacher on their students. I would like to quote from a talk given by Lord Ashby :

> "The chief quality that distinguishes a teacher is a determination and the skill to build bridges between the two generations, to establish a lively communication with the young. The commitment of a teacher is not solely to transmit knowledge; it is to transmit a tradition of scholarship, an attitude to phenomena, a particular style of integrity."

The fruit of learning, after all, is not a book but a man. I strongly believe that this message has much to do with many of the issues that we are concerned about.

Role of the Science Congress

The Science Congress itself has a major role to play in the scientific life of the country. It is one occasion when a large number of citizens interested in science gather together. We have to make use of this tremendous possibility to transform not only Indian science but also our society. We have to use the Science Congress to inculcate scientific temper in our society. The Science Congress would also provide an appropriate forum to inform the public of the various developments in science and technology. Students, teachers and citizens should attend Science Congress sessions to listen to lectures given by authorities in simple terms. In addition, it is also the time to discuss with young people and teachers regarding communication in science. Tutorial symposia, therefore, would be of great importance. The Science Congress should also be a place where voluntary science organizations meet annually and chalk out their programmes, share their experiences and plan for the future. It is my personal belief that it is only through voluntary movements that inculcation of scientific temper, promotion of literacy as well as health and welfare measures will become successful. Government at the Centre and in the States can only do so much, but I do not think that by just investing money in sectors such as education and health, we will get the desired results; the community has to gather itself and participate in people's movements in these essential areas.

In this Science Congress, we have tried our best to see that there is a subtle structural change in its organization. We have mainly plenary lectures in the general sessions in the first two days. Obviously no Science Congress can cover all the topics. We have therefore chosen some aspects of the frontiers of science and technology that are of importance today. There are many which have to be covered in the future sessions of the Science Congress. In addition, there are frontier symposia and tutorial symposia in the different sections. We have a session on science for peace; there will be a meeting of voluntary science organizations and also a symposium on science education. A special meeting has been arranged where Secretaries of some of the Government departments to contribute to the frontiers of science and technology in the country. I do not hope that the Science Congress will gradually become a major force in the country.

Role of Government

There is much for the Government to do in promoting the frontiers of science and technology. The various government agencies will have to take proper measures for supporting excellence and for adequately supporting the broad base required for carrying out research and development. We cannot have simple egalitarian principles applied to promote science. Funding in a routine manner is counter-productive. Science funding should not be governed by the whims and fancies of individuals or of government departments but should be based on a national policy. Something like a National Science and Engineering Foundation should probably be established in the country to examine how best we can fund scientific research.

The government has to eliminate, or at least minimize the tremendous bureaucracy in educational and research institutions. The oppressive bureaucracy in our institutions has been particularly frightening and has chased away many a good scientist from the path of science. True autonomy (especially in financial matters) has to be granted to our scientific and educational institutions.

In 1989, we celebrate Panditji's (Jawaharlal Nehru) birth centenary. It would be in the fitness of things if all the government departments, agencies and ministries dealing with science, technology and industry as well as our scientific and educational institutions (including our national laboratories) were to come out with carefully prepared perspective plans (for a 15 or 20 years period) which review their accomplishments, present status and future plans. The plans have to be prepared based on intensive discussions among all the working scientists in the organization. This exercise would also be useful to our 8th Five Year Plan. Furthermore, it would be the best tribute we can pay to Panditji.

Agony and Ecstasy

Let me close this address by placing on record my personal anguish. It is my belief that in fundamental science, the choice of a research problem mainly determines the quality of research. This is because, if one has a good idea, it is always possible to find ways of testing it. In fundamental science, one has to pick the right problem to be noticed. In applied science, we have to pick problems that yield most benefit.

The difference between first-rate and second-rate research is often very small, and a little more effort can transform second-rate work into first-rate work. However, many of us often prefer to do repetitive work for various reasons rather than do something novel or new. Even under these difficult conditions, those who have pursued with determination and doggedness have succeeded in producing work of quality. Many people ask, how is it that scientists in India cannot make a chance discovery which is great? Unfortunately, even to make a chance discovery, one has to be on the right path. We cannot make a great discovery by chance, if we are not already pursuing something important and significant.

Because we decide to compromise, many of us lose the confidence to pursue something difficult or of value to society. We become afraid of scrutiny and evaluation. Lack of confidence amongst senior scientists affects the attitudes of young people. The senior scientists have to lead the way by means of what we practise. We have to develop a better value system and improve communication amongst ourselves.

We cannot possibly forget that in this country we have had many great scientists of determination and courage who accomplished a great deal in science. We cannot think of better examples of men of science than Ramanujan, Raman and S.N. Bose. Raman was sure that he would win a Nobel Prize when he discovered the Raman Effect and, in fact, there is reason to believe that he was sure of it even much earlier. Raman published independent reaserch papers when he was still undergraduate student in Madras. S.N. Bose, shortly after his postgraduate studies, had the courage to send his research results to none other than Einstein for review. This example of courage of conviction is something that we have to emulate; it needed tremendous confidence to feel that the work he had done deserved the highest recognition. Einstein being what he was, recognised the genius of Bose rightway.

Much earlier to this, Ramanujan did something similar. Working as a clerk in a port trust, with no one to help and without a college education, Ramanujan felt that he had discovered something new working on "Orders of Infinity" and sent the result to Prof. Hardy at Cambridge. This led to a new era in Mathematics.

We have to do something to recognise talent at the right time, to nurture it and to protect people with talent. Men of talent are often subjected to considerable hardship and harrassment. It appears as though that to get results that are worthwhile, we have to toil beyond the call of duty.

I cannot possibly brush aside the agony one goes through while doing science in India, especially experimental science in educational institutions. It is extremely difficult to carry out experiments which are worthwhile. It is much more difficult to do experiments that catch the imagination of the rest of the world. This requires enormous effort but it is essential if we experimental scientists have to make a mark in the world. There is no other joy that I know of that is more overwhelming than the joy of a successful experiment planned by oneself. In this land of Karma, toil and sweat seem to be essential; even with toil and sweat, results are not assured, but without them nothing seems possible. We often have to struggle hard for little things and work against all odds, even without water and electricity. I realise that toiling hard in science may not be the best way to make money or earn a living, but I know no better way to live. One may ask whether I would recommend to young people to take up science as a profession. Yes, unhesitatingly I would. I believe that the thrill that I have experienced in doing science is worth sharing. The agony of doing science and the ecstasy when one accomplishes are both experiences that are worth cherishing.

Science has a simple faith which transcends utility. All men of science and probably men of learning have such a faith. The faith is that it is the privilege of man to understand and that is his mission. knowledge for the sake of understanding is the essence of our being. None can define its limits or set it's ultimate boundaries. □

Coordination Council for Distance Education

The Government of India is reported to have set up a co-ordination council to look into the policies and utility of courses to ensure that uniform standards of distance education are maintained through the network of open universities fast coming up throughout the country. The council, comprising the Vice-Chancellors of the Indira Gandhi National Open University (IGNOU), three State Open Universities and representatives of the Government and the University Grants Commission (UGC), has been mooted to avoid duplication of course materials and minimise the financial burden. According to Prof. G. Ram Reddy, Vice-Chancellor of IGNOU, it is hoped that gradually IGNOU will assume the role of a Central body co-ordinating and overseeing the activities of all the State Open Universities, the aim is to bring distance education under one umbrella.

Prof. Reddy said that IGNOU would ensure that the course material was prepared by one Open University was easily available to all others. Besides, with IGNOU as the coordinator of Open Universities, a student joining such a university anywhere would be free to opt for courses from other Open Universities. In other words, while a bachelor of arts degree requires 96 credits with a maximum of twenty subjects, credits attained in other Open Universities would be taken into account by the parent university in giving the degree.

Technology Park for Pondy Varsity

The Pondicherry University plans to set up a science and technology entrepreneurship park with the help of COSTED (Committee on Science and Technology in Developing Countries). The park will provide a link between academics and industry and would aim at developing expertise in the manufacture of medical equipment.

Dr. S. Radhakrishna, Scientific Secretary of COSTED, said such parks had come up in several places in the country, each of them specialising in a specific field, such as electronics, mechanical or chemical engineering or general electronics. The park would enable students and teachers to gain industrial experience and benefit industrialists by providing them information on the latest developments in science and technology. Central facilities, such as workshops, medical centre, lecture rooms and copying centres would be made available to the entrepreneur.

Dr. K. Venkatasubramaniam, Vice-Chancellor of the University, said the park was being modelled on the lines of those abroad. The park would be an enclave located near the university campus. Each entrepreneurial unit would be associated with one or a small group of academics from the university, who would provide the basic technical know-how. The land would also be provided by the university and the industry, in turn, would provide employment opportunities to students.

Indo-French Centre for Research

The Indo-French Centre for the Promotion of Advanced Research (IFCPAR), an Indian registered society, founded in 1985 to promote co-operation between India and France in advanced areas of fundamental and applied scientific research has recently identified thirteen priority areas for future long-term joint projects. The priority areas are : (1) Pure and applied mathematics; (2) theoretical computer sciences; (3) cellular & molecular biology/genetic engineering, bio-technology—applied to medicine and agronomy; (4) medical sciences—epidemiology, immunology, virology, development of new vaccines and new drugs, biomedical engineering (e.g. design of aritificial aids); (5) chemistry of natural products with special reference to biologically active compounds and agro-chemicals; (6) catalysis—science and engineering; (7) liquid interface science; (8) material science & engineering—advanced ceramics composites, polymers, etc.; (9) rare earths; (10) astrophysics and radio astronomy; (11) seismic data processing; (12) remote sensing applications, (ground water prospecting, forestry, etc.,); and (13) water treatment and distribution.

The project proposals are likely to be submitted and examined by mid 1988. It has also been decided that the selection and execution of future research projects will be based on scientific quality, continuity in a long term-perspective.

ISM Identifies Thrust Areas

Apart from the research work under various science and technology schemes as well as individual research work of teachers, the Indian School of Mines (ISM), Dhanbad has identified a few thrust areas like Computer Applications and Software Development in the Mineral Industry, Energy Management, Environmental Management including Data Generation, Remote Sensing and Sattelite Photo Interpretation, etc. The School has already entered in the area of software development with Coal India Ltd. Four areas have been identified, viz., (i) Production and

Operation Management in the Mines, (ii) Design of Drilling and Blasting Patterns, (iii) Study of Shovel Dumper systems in Opencast Production, and (iv) Ventilation Network Design System in the Underground Mines where the School is being entrusted to carry out the software development work. The capabilities of the ISM Computer Centre are also being augmented through procurement of imported additional system and peripherals. More number of PCs are being procured for different departments. Most of the departments of the School are having PCs for Students' training and research.

National Engineering Awards

The Institution of Engineers has honoured three engineers with national awards-1987, for distinguished contributions at the second Engineering Congress held at Hyderabad recently.

The National Design Award for 1987 in earthquake engineering was presented to Dr. Anand Swarup Arya of the Roorkee University in recognition of his meritorious contribution on research, development and design of earthquake resistance structures that help mitigate earthquake disasters.

In the field of Mining Engineering the award was given to Prof. Ajay K. Ghosh of the Dhanbad Mining School. Prof. Ghosh was instrumental in setting up of a central planning and design institute for coal industry and responsible for developing prototype jet piercing rockerdrill in collaboration with the Vikram Sarabhai Space Centre, Trivandrum.

The Rural Development Forum Award was presented to Dr. Arabindo Nath Bose, Adviser in Engineering, Indian Institute of Technology, Kharagpur for his contributions in developing processing techniques and equipment for commercial treatment of food materials.

IGNOU Offers New Courses

Prof. G. Ram Reddy, Vice-Chancellor, Indira Gandhi National Open University (IGNOU) said that the university proposed to offer B.Sc. courses from early next year. In addition, short-term courses in technology, library science, nutrition and child care as well as health would also be started the following year. He said emphasis would be on the science courses [and the existing study centres would be utilised for providing laboratory facilities. At present, there are seventy study centres and the number is expected to go up to one hundred soon.

IGNOU will also offer a diploma course in rural development and computer education by 1990. The training course for the Block Development Officers would ensure that the real philosophy behind the anti-poverty programmes is understood in letter and spirit.

Another new area is tribal education and IGNOU is to start some courses for the benefit of tribals. The National Institute for Educational Planning and Administration (NIEPA) is at present engaged in the task of identifying teachers education in tribal areas, particularly in Mizoram.

News from Agril. Varsities

Post Harvest Technology for Fruits and Vegetables

Dr. M.V. Rao, Special Director General of I.C.A.R., New Delhi inaugurated the 6th workshop on 'All India Coordinated Research Project on Post Harvest Technology of Horticultural Crops' at the Konkan Krishi Vidyapeeth, Dapoli on January 28, 1988. He said that there was an urgent need to check the losses accrued on account of lack of appropriate Post Harvest Technology by designing appropriate technology in every facet of post harvest. Referring to the ICAR network for post harvest research, Dr. Rao said that there were eight Post Harvest Technology centres in the country of which one was located at the Konkan Krishi Vidyapeeth. He acclaimed the achievements made in bringing about the self-sufficiency in foodgrain production but said that not much progress was made in increasing the yield of hill millets. He also stated that there was an urgent need of boosting the production of pulses and oilseeds. In this direction, the ICAR had sanctioned various schemes for raising pulses and oilseeds production. He further added that the Konkan region is adequately suited for oil palm cultivation particularly where the irrigation potential was developed. The research unit recently allotted for the Konkan Krishi Vidyapeeth should therefore make all efforts in developing suitable recommendations for cultivation of this new crop. He complimented the Konkan Krishi Vidyapeeth for standardising stone grafting technique for mass production of Alphonso grafts; evolving high yielding varieties of cashew for raising cashew production; evolving regularly bearer and free from spongy tissue

Ratna variety of mango and in promoting spices and aromatic crops' production. He pinpointed the areas which accounted for losses and said that research was needed in controlling pests and diseases; checking storage losses; developing cheap means of transportation, reduction in costs of cultivation of fruit crops for competing in the world market and checking losses in handling. For inculcating importance of the Post Harvest Technology among the farmers, Dr. Rao said that trained manpower in the field was urgently needed. He suggested that the industries that have been making good profits by adopting the new technology made available in the field should revert part of their profit in undertaking research and development work. This, he said, was being followed in most of the developed countries.

Dr. Kaul, Additional Director General (Hort.), ICAR, New Delhi briefly reviewed the work done in Post Harvest Technology in India and said that new centres were being opened at vatious places considering the potential. He said that the Indo-USAID project had identified the Post Harvest Technology programme as a priority programme. There is dearth of trained personnel in this field and he appealed the university authorities to form teams of suitable staff for training personnel in this vital area.

Dr. S.B. Kadrekar, Vice-Chancellor of the Vidyapeeth, in his presidential address, remarked that many people in the Konkan region have been engaged in preparing products like mango leather, mango pulp, dried kokum, refreshing drinks from kokum, cashew, apple, pickles, jams and jellys, etc. by traditional way. If these people are properly trained, it would be possible to establish a chain of small scale industries in the region which would give employment to the rural people especially women folk. He urged that the centre sanctioned for the university be adequately strengthened to meet the requirements.

Our 100 scientists, drawn from the Post Harvest Technology centres located in the country, attended the 3-day workshop.

Asian Conference on Mycorrhizae

Mycorrhizae, the beneficial fungi associated with the roots of higher plants, have tremendous potential in enhancing the growth of forestry species and in boosting the output of legumes, and they should be put to best use, said Dr. G. Rangaswamy, former Vice-Chancellor of the Tamil Nadu Agricultural University, Coimbatore while inaugurating the first Asian conference on "Mycorrhizae organised by the Centre for Advanced Studies (CAS) in Botany, Madras University recently. A lot more work need to be done on the usefulness of these beneficial organisms, both at fundamental and applied levels, he added. Mycorrhizae must be playing a crucial role in the nitrogen and carbon cycles, and a better understanding of their contribution to soil nitrogen will help scientists to perfect technologies for mass multiplication of these fungi. By doing so, the researchers will be doing a great service to the farmers, he said.

Mr. A. Karim Oka of the International Development Research Centre (IDRC), Canada, said inoculating the mycorrhizae in the soil to increase crop yields was a viable proposition, and the IDRC saw its beneficial effects in the afforestation programmes in Africa. The IDRC will soon establish the first Asian centre for mass multiplying the inoculum of endomycorrhizae in Pune, and also extend financial support for the regional network on mycorrhizae in the continent.

Our 150 scientists from all over

ASSOCIATION OF INDIAN UNIVERSITIES

CORRESPONDENCE COURSE IN EVALUATION METHODOLOGY & EXAMINATIONS

Applications are invited from college/university teachers for admission to Correspondence Course in Evaluation Methodology and Examinations at Basic Level, Intermediate Level and Advanced Level/Special Professional Course. The duration of each of the three courses is six months. A personal 'Contact Programme' for three days is planned for each of the three courses. Universities/Institutions sponsoring candidates can meet the registration/course fees from out of unassigned grants by UGC.

Request for prospectus and application form accompanied by a crossed Indian Postal Order for Rs. 10/- drawn in favour of the Secretary, Association of Indian Universities and a self-addressed stamped envelope (Rs. 2/-) should be sent to the Project Director (Exams.), Association of Indian Universities, 16 Kotla Marg, New Delhi 110002. Last date for receipt of application is **15th March** for non-sponsored and **16th March, 1988** for sponsored candidates.

the country and abroad attended the two-day conference.

Sand Dune Stabilisation Project

Haryana Agricultural University proposes to establish a national research project (N.A.R.P.) sub-station at Loharu as part of the sand dune stabilization project in the desert tract of Haryana. The objective of the project is to carry out research for stabilization of sand dune and protection and development of soil resources through appropriate afforestation and planting of suitable species of grasses in this area.

In view of the characteristics of this tract, the main research thrust of the project will be in the field of soil erosion by wind, farm forestry, pasture development and animal nutrition. Further details of the programme are being worked out for onward submission to the Indian Council of Agricultural Research (ICAR) which has sanctioned the project to the University.

AIU News

AIU at World Book Fair

Association of Indian Universities (AIU) arranged a collective display of AIU Publications and those of member universities at the 8th New Delhi World Book Fair organised by the National Book Trust from 5th to 15th February, 1988. The Fair was inaugurated by Dr. Shanker Dayal Sharma, Vice-President of India. Highlighting the importance of the books and the libraries, the Vice-President observed that libraries were more important than the universities; whereas a library could exist without a university, no university could exist without a library. He also pleaded that academics and the publishers should put their heads together to make available to students such well produced books that inculcated in them a love of reading.

Earlier, Shri Anand Sarup, Chairman, National Book Trust while welcoming the Vice-President and the guests to the inaugural function surveyed the role of the National Book Trust in the promotion of the reading habit in the country.

The World Book Fair that provided an opportunity to students, teachers and book lovers to browse books published all over the world attracted over 630 participants, including 71 from abroad. Around 4 lakh titles in English and other languages were displayed at the Fair.

The titles displayed at the AIU Stall were scholarly publications in the fields of Psychology, Sociology, Education, Politics, Economics, Public Administration, Literature, Agriculture, Engineering, Technology and Medicine. About 20 universities displayed their publications under the auspices of the AIU; notable amongst these were the Haryana Agricultural University, Telugu University, IIT Delhi, Gujarat University, Burdwan University, M.S. University of Baroda, Osmania University, Roorkee University, JNU, New Delhi, AIIMS, New Delhi, etc. The AIU Stall was visited by a number of academics, research scholars, librarians and students from various universities and institutions. Quite a number of them impressed upon the need for compilation of a consolidated catalogue of the publications of all the universities as also the desirability of making them available under one roof.

It is hoped that such universities as did not participate in the fair or put up their individual stalls will join AIU next time and enable it to offer a larger sampling of the scholarly university publications to readers, librarians and the book trade.

Sports News

Inter-University Judo

Delhi University Judokas reaped a rich harvest of 12 medals in the first All India Inter-University Judo Championship held recently at Laxmibai National College of Physical Education, Gwalior (Jiwaji University).

Guru Nanak Dev University, Amritsar with a tally of 8 medals and Amravati University bagging 6 medals finished 2nd and 3rd respectively in the three day meet.

Guru Nanak Dev University Judokas keenly contested Delhi University both men's and women's sections for the Gold tally. Both the teams took two golds each in men's section and three golds each in the women's section. Jiwaji University, the hosts, mustered only 4 Bronze Medals, two each in men and women sections.

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertations as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

EDUCATIONAL PHILOSOPHY

Howard, H. Wendell. Traditions. *College Bd Rev.* (144), 1987, 16-9, 26.

Scott, David. Value education in an age of crisis of identity. *New Frontiers Edn* 17(4), 1987, 65-82.

EDUCATIONAL PSYCHOLOGY

Ginsburg, Sigmund G. The motivating factor : How leaders inspire administrators. *Ednl Record* 68(3), 1987, 42-4.

Mistry, Thakorlal C. A comparative study of attitudes, values and personality characteristics of rural, urban and non-Gujarati college and secondary teachers. *Prog Edn* LXII(6), 1988, 140-44.

Pal, S.K. and Bhagoliwal, S. Personality characteristics associated with teacher effectiveness as seen through the Rorschach technique. *Indian Ednl Rev.* 22(3), 1987, 17-30.

EDUCATIONAL PLANNING

Bruton, M.J. University planning and management in conditions of complexity and uncertainty. *Hr. Edn. Q.* 41(4), 1987, 373-89.

Mukalel, Joseph. Gandhian elements in the New Education Policy. *Gandhi Marg* 9(6), 1987, 346-52.

EDUCATIONAL ADMINISTRATION

Kaplan, Robert B. Foreign students : Developing institutional policy. *The Coll. Bd. Rev.* (143), 1987, 7-9, 28-30.

Mikolji, B.H. Academic reform, prospects for : To plan, perchance to change. *Coll. Bd. Rev.* (145), 1987, 10-13, 31.

Uehling, Barbara S. Serving too many masters : Changing the accreditation process. *Ednl. Record* 68(3), 1987, 38-41.

CURRICULUM

Gabelnick, Faith. Curriculum design : The medium is the message. *New Directions Teaching & Learning* (25), 1986, 75-86.

Hocevar, Dennis and others. The measurement of preference for course structure and preference for course difficulty : The Instructional Preferences Inventory (IPI). *Ednl. Psy Measurement* 47(4), 1987, 997-1003.

TEACHERS & TEACHING

DEVELOPMENTS IN training methods for teacher education. *Intl. J. Ednl. Res.* 11(5), 1987, 517-600.

Halvorson, Peter L and others. Professional development: Whose agenda ? *Academe* 73(3), 1987, 15-18.

Hamilton, Wayne B and Hardesty, Von D. Museum-University partnerships. *Coll. Bd. Rev.* (145), 1987, 22-5, 33-34.

Tacha, Deanell R. Advising and interacting outside the classroom. *New Directions for Teaching & Learning* (25), 1986, 53-63.

Waugh, Russell F and Punch, Keith F. Teacher receptivity to systemwide change in the implementation stage. *Rev. Ednl Res.* 57(3), 1987, 237-54.

EDUCATIONAL RESEARCH

Friedman, Paul G. Independent study, fieldwork and peer teaching. *New Directions Teaching & Learning* (25), 1986, 87-98.

EDUCATIONAL TECHNOLOGY

ARTIFICIAL INTELLIGENCE. *Daedalus* 117(1), 1988, 1-311.

Leach, James. Teaching AP calculus by telephone and computer. *Coll. Bd. Rev.* (140), 1986, 15, 29-30.

EVALUATION

Astin, Alexander W. Assessment, value-added, and educational excellence. *New Directions Hr. Edn.* (59), 1987, 89-107.

Astin, Alexander W. and Ayala, Frank. A consortial approach to assessment. *Ednl. Record* 68(3), 1987, 47-51.

Bagchi, Jyoti Prakash. An enquiry into the aspects of students' achievement : Attribution theory. *Indian Ednl. Rev.* 22(3), 1987, 134-41.

Cruse, Daniel B. Student evaluations and the university professor : Caveat Professor. *Hr. Edn.* 16(6), 1987, 723-37.

Fuller, Bruce. What school factors raise achievement in the Third World. *Rev. Ednl. Res.* 57(3), 1987, 255-92.

Gunasekharan, K. Secret/Dummy number system in examinations. *New Frontiers Edn.* 17(4), 1987, 90-99.

Halpin, Gerald and Halpin, Glennelle. An analysis of the reliability and validity of procedures for setting minimum competency standards. *Ednl. Psy Measurement* 47(4), 1987, 977-83.

Norcini, John J. The answer key as a source of error in examinations for professionals. *J. Ednl. Measurement* 24(4), 1987, 321-31.

Schurr, Terry K. and others. Actual course difficulty as a factor in accounting for the achievement and attrition of college students. *Ednl. Psy Measurement* 47(4), 1987, 1049-54.

Strenta, A. Christopher and Elliott, Rogers. Differential grading standards revisited. *Jr. Ednl. Measurement* 24(4). 1987, 281-90.

Wood, Robert E and Locke, Edwin A. The relation of self-efficacy and grade goals to academic performance. *Ednl Psy Measurement* 47(4), 1987, 1013-24.

ECONOMICS OF EDUCATION

Huq., A.M. Investment in human capital : The Gandhian perspective. *Gandhi Marg* 9(6), 1987, 362-9.

Levin, Henry M and Tsang, Mun C. The economics of student time. *Eco. Edn. Rev.* 6(4), 1987, 357-64.

Simpson, William B. Income-contingent student loans ; Context, potential and limits. *Hr. Edn.* 16(6), 1987, 699-721.

DISTANCE EDUCATION

Kelly, Mavis. The high cost of efficiency and effectiveness in Australia. *Open Learning* 2(3), 1987, 19-24.

Melton, Reg. Innovation in the Open University. *Open Learning* 2(3), 1987. 42-5.

COMPARATIVE EDUCATION & COUNTRY STUDIES

Akpan, P.A. The spatial aspects of higher education in Nigeria. *Hr. Edn.* 16(5), 1987, 545-55.

Chandra, Nirmal Kumar. Education in China ; From the cultural revolution to four modernisations. *Eco. Pol. Weekly* XXIII (19-21), 1987, 121-36.

Cleverley, John F. The concept of enterprise and the Chinese University : A cautionary tale of profit and loss. *Comp Edn.* 23(3), 1987, 345-53.

Kosemani, J.M. Social justice and higher education in Nigeria. *Prog Edn.* LXII(5). 1987, 105-10.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

BIOLOGICAL SCIENCES

Biochemistry

1. Chakkrabarti, Chandra. *Effect of sewage and sludge application on some enzyme activities and trace metal uptake in crops influencing their growth and yield.* Nagpur. Dr. P.V.R. Subrahamanyam.

2. Kamalkar, Prabhakar L. *Brain metabolism in health and diseases.* Nagpur. Dr. (Smt.) I.P. Vaishwanar.

3. Mitra, Prasanta Kumar. *Role of amlaki, Emblica officinalis Linn in experimental ulcer.* NBU.

4. Moideen Kutty, A.V. *Studies on amylase inhibitors of plant origin.* Mangalore. Dr. T.N. Pattabiraman.

5. Zahida Nasreen. *Functional significance of enzymes of glutamate and gaba metabolism in rat brain.* Osmania.

Botany

1. Bhoite, A.S. *Studies on salt tolerance of Aeluropus lagopoides Linn : A halophytic grass.* Bhavnagar. Dr. A.J. Joshi.

2. Bopaiah, A.K. *Cytological chemotaxonomical and in-vitro seed culture studies in some members of the sub-tribe cyrtopodiinae of the tribe cymbideae Pftizer (Orchidaceae).* Karnatak. Dr. K. Nataraj.

3. Chowdhary, Kuldip Singh. *Chemical weed control studies in medicinal and aromatic plants.* Jammu. Late Dr. S.N. Khosla and Prof. A.K. Kaul.

4. Divakar, K.M. *Cytoembryological investigations on certain orchids of tribe Epidendreae and Vandeae.* Karnatak. Dr. M.S. Channaveeraiah.

5. Ponnammal, N.R. *Studies on photosynthesis and productivity in quick growing trees.* Madurai.

6. Shrivastava, Jitendra Lal. *Ecological studies on the flora of Jabalpur Town and its neighbourhood.* Durgawati. Dr. M. Oommachan.

7. Trivedi, Alka Ben. *Study of toxic food contaminants and their spoilage metabolites.* HS Gour. Dr. S.C. Agrawal and Shri U.N. Joshi.

Zoology

1. Belliyappa, Geetha. *Studies on effect of biocides on growth and body composition of a few fresh water catfishes.* Bangalore. Dr. S. Ravichandra Reddy.

2. Bharathi, G. *Endocrine control of reproduction in female fresh water crab, Barytelphusa guerini.* Osmania.

3. Chauhan, M.S. *Histological and physiological studies on the pineal organ of certain teleosts under different environmental conditions.* Vikram. Dr. A.K. Pandey.

4. Mahalakshmi, V. *Studies on some biochemical and histochemical aspects in monogenetic trematodes—Thaparocleidus isotylus and Pricea multae.* Osmania.

5. Mishra, Neerja. *Studies on the nervous system and neuroendocrine components in some trematode parasites.* NEHU. Dr. (Mrs) Veena Tandon.

6. Mohammad Gulam Hussain. *Reproductive endocrinology of the male freshwater crab, Barytelphusa guerini Milne Edwards.* Osmania.

7. Nayak, Mangala Shankar. *Studies on the developing endocrine glands of the pigeon, Columbea Livia.* Karnatak. Dr. V.B. Nadkarni.

8. Pani, Suresh Chandra. *Aspects of ecological studies on tropical earthworms in irrigated agricultural system of Orissa, India.* Sambalpur. Dr. B.K. Senapati.

9. Parameshwar Rao, G. *Studies on some aspects of histochemistry of platyhelminthes.* Osmania.

10. Prem Badan. *Taxonomy and bionomics of treehoppers. (Homoptera : Membracidae) infesting shisham; Dalbergia sissoo Roxb in Jammu forest.* Jammu. Dr. Baldev Sharma.

11. Vijitha, T. *Studies on some aspects of protein metabolism and effect of antibelminthic drugs on cestode parasite, Stilesia globipunctata and host (Sheep).* Osmania.

Medical Sciences

1. Kamala, J. *Role of chromosomal proteins in the regulation of gene expression during cardiac hypertrophy.* Madurai.

2. Sharma, Shyam Sunder. *Arsho rog mein durnamantakvati evam kshar prayog kee karmukta.* Rajasthan. Dr. Ram Prakash Swami.

3. Sujatha, D. *A neuropsychological study of cognitive deficits in schizophrenia.* Bangalore. Dr. C.R. Mukundan.

Agriculture

1. Barooah, Ratul Chandra. *Effects of different levels of nitrogen and F.Y.M. on biological nitrogen fixation in maize, Zea mays.* HAU.

2. Bhopinder Kumar. *Studies on the standardization of nutrient ranges in apple.* YS Parmar. Dr. R P. Awasthi.

3. Kamla Devi. *Processing and utilisation of Lantana camara L. as a source of organic manure.* HP Krishi. Dr. K.K.R. Bhardwaj.

4. Krishan Kumar. *Phenotypic variability in almond collections at Ludhiana from Jammu and Kashmir.* PAU.

5. Rajinder Parshad. *Response of kinnow mandarin to nitrogen under different soil management practices.* YS Parmar. Dr. Jagmohan Singh Chauhan.

6. Saluja, Neeru. *Sericulture for rural development : Studies on mulberry, tasar and eri.* IIT Delhi. Prof. P. Vasudevan and Dr. Mira Madan.

7. Shashi Paul Dev. *Recycling of crop and plant wastes in improving crop yields, nitrogen use efficiency and soil properties.* HP Krishi. Dr. K.K.P. Bhardwaj.

8. Shrestha, Ananda Prasad. *Response of potato to nitrogen as influenced by irrigation and organic matter.* HP Krishi. Dr. R.S. Minhas.

9. Surrinder Kumar. *Genetics of some Physiomorphological and quality traits in Brassica napus L.* PAU.

INDIAN INSTITUTE OF SCIENCE
BANGALORE-560 012

Requires

Assistant Professor in the
Instrumentation and Services Unit (RIC)

Qualifications and Experience

Essential : Ph.D. in Science/Engineering or Technology with atleast 5 years post-doctoral experience in instrumentation work in the areas of analytical, electronics, optics thermal or other allied instrumentation.

Desirable : Experience in teaching and in organising short term courses; handling research projects/ schemes.

Emoluments : Rs. 5,055/- p.m. in the scale Rs. 3700-5300.

Details and prescribed application forms can be obtained from the Registrar, on request accompanied by a crossed Postal Order for Rs. 5/- (free of cost for SC/ST on production of Caste certificate from a competent authority) drawn in favour of Registrar, Indian Institute of Science, alongwith a self-addressed stamped (Rs. 5.40) envelope of the size 28 x 18 cms **on or before 7th March 1988.**

R(IA) 308-3/88 **Registrar**

INDIAN COUNCIL OF MEDICAL RESEARCH

Applications are invited upto **25th March 1988** for the posts of **DIRECTOR** in the following Institutes/ Centres :

(1) At the Regional Medical Research Centre, Bhubaneswar.

This Centre is engaged in scientific research related to diseases with high prevalence in the state of Orissa and neighbouring States with major emphasis on filariasis, malaria, leprosy and diseases prevalent in the tribal population.

Qualifications & Experience: Essential : M.B.B.S. with a doctorate in Pathology/Microbiology/Preventive Medicine or relatec disciplines with research experience of 15 years with original work as evidenced by publications.

Desirable : Administrative experience in responsible positions.

Job Requirements : It is a top research management post. The Director will have the overall responsibility of the Institute and for creating an atmosphere conducive to creative work. To promote biomedical research in the field of communicable diseases, to train technical manpower, and to interact with local health authorities to help solutions to their health problems in the region.

(2) At the Regional Medical Research Centre, Port Blair :

This Centre is engaged in scientific research in different aspects of diseases such as malaria, diarrhoeal diseases, nutritional aspect and Sero-epidemiology etc., with a multisectoral approach to study the health problems in general and of the tribals of this territory in particular. The Centre has well-equipped laboratories and other infrastructural facilities for conducting clinical and laboratory studies.

Qualifications & Experience: Essential : M.B.B.S. with a doctorate in Pathology/Microbiology/Social and Preventive Medicine/General Medicine or allied discipline with research experience of 15 years with original work as evidenced by publications.

Desirable : Administrative experience in responsible positions.

Job Requirements: The Director is expected to provide high level leadership in the identification, formulation and implementation of R&D programmes and projects of national importance in the above areas. He will establish rapport with academic and professional institutions and Govt. and international agencies dealing with the various related Research and Development aspects for ensuring multi-agency co-operation whenever necessary for fulfilment of the objectives of the Centre. He will interact with local and national health authorities in the formulation, implementation and assessment of the health problems in the Territory. He will have the overall responsibility for the working of the Centre within the framework of the ICMR system and for ensuring an atmosphere conducive to the creative work.

(3) At the Rajendra Memorial Research Institute of Medical Sciences, Patna (Bihar State)

This Institute conducts studies on the epidemiology, Clinical aspects, Immunology and Chemotherapy of Kala-Azar and also other related diseases. The Institute has excellent facilities for undertaking research in the above fields and is equipped with modern Laboratories and equipment. This Institute has a staff of over 100.

Qualifications & Experience : Essential : M.B B.S. with M.D./Ph.D.D.Sc. in Parasitology/Microbiology/ Preventive Medicine or related disciplines with 15 years research/teaching experience with original work as evidenced by publications.

Desirable : Administrative experience in responsible positions.

Job Requirements : It is a top research management post. The Director will have the overall responsibility of the Institute for creating an atmosphere conducive to creative work; to promote biomedical research in the field of communicable diseases, to train technical manpower and to interact with local health authorities to help in the solution of their health problems in the region.

(4) At the National Institute of Nutrition, Hyderabad

This Institute is engaged in research in Nutritional Sciences. The Institute has been responsible for initiating major research programmes in human Nutrition and has been an important training centre for medical and paramedical personnel. The Institute has acquired adequate modern equipment and other infrastructural facilities for conducting its activities.

Qualifications & Experience : Essential : M.D./ Ph.D./DSc. in any discipline in medical sciences or life sciences with research experience of 15 years with original work in the field of nutritional Sciences as evidenced by publications.

Desirable : Administrative experience in responsible positions.

Job Requirements : The Director is expected to provide high level leadership in identification, formulation and implementation of R&D Programmes and projects of national importance in the field of human Nutrition. He/She is expected to develop fruitful linkages with academic and professional institutions, Governments and international agencies. He will have the overall responsibility for the working of the Institute within the framework of the ICMR System and for ensuring an atmosphere conducive for creative work. The selected candidate is expected to take over as a Director from 31st August, 1988.

Salary/Conditions of Service : The scale of pay attached to the post is Rs. 5900-200-6700 plus allowances as per Central Govt. Rules and N.P.A. of Rs. 900/-p.m. for medical graduates only. Higher initial pay can also be considered. Free medical aid and leave travel concession are also permissible for the employee and his family as per Govt. rules.

Age: Below 50 years. SC/ST candidates allowed relaxation in accordance with Government of India Rules.

Educational qualifications relaxable in the case of candidates otherwise well qualified.

Benefits of pension admissible. Private practice is not allowed. However, non-practising allowance is admissible to medical graduates only as per rules of the Council. Applications complete is all respects should be sent to the Director General, Indian Council of Medical Research, Ansari Nagar, Post Box No. 4508, New Delhi-110 029. Applications should be accompanied with crossed postal order for Rs. 8/- (No fee for SC/ST candidates) made out in the name of Director General, Indian Council of Medical Research, New Delhi. Applications without postal order will not be entertained.

Candidates called for interview will be paid 1st class rail fare by the shortest route. No TA/DA is admissible for joining the post or on termination of appointment. Application from the employees working under the Central/State Govt./Semi Govt. and Govt. controlled undertakings should be sent through the employers and be received before the closing date alongwith the certificate that the applicant will be relieved within three months of receipt of appointment orders. Advance copies will be considered subject to the proviso that the certificate will be produced at the time of personal discussion. Applications received after the closing date will not be considered. At the time of interview they should produce "No Objection Certificate" from their employer.

The name of the post and of the Institute must be indicated in the application. Incomplete applications will not be entertained.

International Institute for Population Sciences

(Deemed University)

Govandi Station Road, Deonar, Bombay-400088.

FELLOWSHIPS IN POPULATION STUDIES

Applications are invited on prescribed forms for the award of FIFTEEN FELLOWSHIPS each of Rs. 500/- per month and tenable for a period of one year, for the Certificate Course in Population Studies conducted by the Institute which will commence from 4th July, 1988. Applicants seeking admission should have good Master's degree in any of the subjects: Statistics, Mathematics, Economics, Sociology, Social Anthropology, Psychology, Geography, Preferably with adequate knowledge of statistical methods. Those who are likely to appear or have appeared for M.A./M.Sc. examination in any of the above subjects and results are not yet announced may also apply. All the students are required to stay in the Institute's Hostel.

Two fellowships are reserved for Scheduled Caste and Scheduled Tribe candidates. In case suitable candidates are not available, they will be treated as unreserved.

Requests for particulars and application forms may be addressed to the Assistant Registrar (Academic) and should be accompanied by self-addressed envelope, atleast of 25 x 12 cms. with Rs. 2.20 stamp duly affixed. Closing date for the receipt of completed applications is **March 25, 1988**.

K. Srinivasan
DIRECTOR

Indian Institute of Technology, Bombay-400076

P.O. IIT, POWAI, BOMBAY - 400 076

Advertisement No. C-185/87-88.

Applications on plain paper are invited for the following permanent post at the Computer Centre of this Institute. Persons employed in Government/Semi-Government Organizations or Educational Institutions should apply through proper channel. The post carries allowances such as D.A., H.R.A., C.C.A., as per rules of the Institute which at present correspond to those applicable to the Central Government employees stationed at Bombay. Depending on qualifications and experience, a higher salary may be offered to deserving candidate.

A Fourth Generation Main-frame Computer System (Cyber 180/840) has been recently installed at the Computer Centre which looks after the computing requirements of the Institute and other Organizations. With the Cyber-180/840 Computer System, the Computer Centre is one of the most modern and sophisticated centres in India. In addition, the Institute has a number of mini and micro-computing facilities.

1. Systems Manager—One Post.

The incumbent will either be appointed in the pay scale of Rs. 1500-60-1800-100-2000 or Rs. 1500-60-1800-100-2000-125/2-2500 depending on the qualifications and experience of the candidate.

(The total gross emoluments on the minimum of the scale is Rs. 3,405/- approx. including House Rent Allowance. The scale of pay is likely to be revised shortly). Systems Manager will be responsible for the overall management of the Computer Centre and will assist the Head, Computer Centre in planning and management of the various facilities at the Centre.

Specifically, his responsibilities include :

(a) Supervision of all the operational and maintenance requirements of the Centre.
(b) Interaction with the Computer users.
(c) Regular performance monitoring and tuning of the system(s) available at the Centre.
(d) Software acquisition and installation.
(e) Software development and maintenance.
(f) Planning and conducting short-term courses primarily for the Computer users.
(g) Planning and preparing relevant documentations for the Computer users.
(h) Attending to any other duties/responsibilities as may be assigned by the authorities of the Institute and the Head of the Computer Centre.

The SYSTEMS MANAGER will lead a team of Software Engineers and Operational staff and he may be provided with accommodation on priority basis and on payment of licence fee as per the rules of the Institute.

QUALIFICATIONS

(a) M.E./M. Tech./B.E./B. Tech. in Computer Science or in any field of Engineering with good academic record.

OR

(b) M Sc. in Computer Science/Mathematics/Physics with good academic record.

EXPERIENCE

The candidate should have at least 10 years of relevant experience, out of which not less than 3 years should be in Systems Programming/design and at least 2 years must be in a supervisory position. Some exposure to the internals of a contemporary operating system is essential. Experience with a large time-sharing Computing facility is desirable.

Candidates who possess the requisite qualifications and experience may apply stating full name and address, date of birth, details of academic qualifications and experience with copies of certificates, testimonials, list of publications, if any, and the names of three referees with their postal addresses **to the Registrar, Indian Institute of Technology, Powai, Bombay-76 on or before 10th March, 1988** alongwith a crossed postal order for Rs. 7.50. Candidates belonging to SC/ST communities need not send a postal order.

REGISTRAR

CLASSIFIED ADVERTISEMENTS

UNIVERSITY OF DELHI

DELHI—110007

Estab. IV/112/88

Dated the 8th February, 1988

Applications in the prescribed form are invited for the following posts :

S. No.	Department/Unit	Post	No. of Vacancies	Special/Desirable Qualifications
1.	Central Office	Programme-Cum-Statistician	One	Experience of processing of Examination Work.
		Driver	(Panel to be drawn) Certain percentage of posts also reserved for Scheduled Caste/Scheduled Tribe/Ex-Servicemen categories.	A pass in Middle School standard.
2.	Chemistry	*Laboratory Attendant	Two (One reserved for Scheduled Caste)	Should have worked in a Laboratory.
3.	Computer Centre	*Key-Punch Operator	One (Reserved for Scheduled Tribe)	
4.	D.U. Library System	*Jr. Library Attendant	Panel to be drawn (Certain percentage of posts also reserved for Scheduled Caste/Scheduled Tribe/Ex-Servicemen categories)	Certificate in Library Science.
5.	Graphic Arts Centre	**Mechine Operator (One each for Micro-Filming & Process Camera)	Two (one each reserved for Scheduled Caste/Scheduled Tribe.)	
6.	Delhi University Guest House	*Room Bearer	One	(a) Should be able to total bills & collect cash from the guests outside office hours. (b) Should know cycling. (c) Preference for a person with basic knowledge of plumbing and electricity work.
		Cook	One	Should have specialization in Mughalai and Continental Cuisine apart from Indian dishes.

** Candidates of General Category may also apply.
However, their candidature would be considered only if no Scheduled Caste/Scheduled Tribe candidate found suitable.

7.	Hindi	*Hindi Assistant	One	
8.	Management Studies	Sr. Programmer	One	(i) Experience of participation in training programme in Computer related disciplines. (ii) Intensive experience in System and Programming on a third generation Computer System.

		Programmer	One	(i) Experience of participation in training programmes in Computer related disciplines. (ii) Knowledge of an assembly language.
		*Junior Computer/ Jr. Console Operator	One	—
		*Technical Assistant	One	Experience in Computer Programming will be preferred.
9.	University Science Instrumentation Centre.	*Technician Grade VII	Two (One each for Glass Blowing and Automobiles)	—
10.	Music	*Tanpura Players	Two (for a period of five years) (One reserved for Scheduled Caste)	(i) Degree / Diploma in Vocal Music. (ii) Persons having educational background will be given preference.
		*Sarangi Players	Two (One permanent and one for a period of 5 years). (One reserved for Scheduled Caste)	—
		*Tabla Accompanist	Two (For a period of 5 years) (One reserved for Ex-Serviceman)	1. Knowledge of other percussion Instruments like Dholak, Naal, etc. 2. Knowledge of Hindustani Music (Vocal/Instrumental) 3. Persons having educational background will be given preference. 4. Two years working experience in University/College/Recognised Institution / A. I. R./ Doordarshan.
		*Pakhawaj Player	One (for a period of 5 years).	
11.	Unit for Plant Cell & Molecular Biology.	*Senior Technical Officer	One (Temporary upto August 1988 but likely to continue on permanent basis).	—
12.	WUS Health Centre	*Pharmacist	Two (One temporary upto 13.12.88)	—

Scales of Pay for the Posts are :

Senior Programmer/Senior Technical Officer	Rs. 1200-50-1300-60-1900	) Pre-revised
Programmer/Programmer-cum-Statistician	Rs. 700-40-1100-50-1600	)
Junior Computer/Junior Console Operator/Technical Assistant/ Hindi Assistant.	Rs. 1400-40-1800-EB-50-2300	
Pharmacist	Rs. 1350-30-1440-40-1800-EB-50-2200	
Tanpura Player/Sarangi Player/Tabla Accompanist/Pakhawaj Player	Rs. 1320-30-1560-EB-40-2040	
Key Punch Operator/Machine Operator/Technician Grade VII	Rs. 975-25-1150-EB-30-1540	
Driver	Rs. 950-20-1150-EB-25-1500	
Cook	Rs. 825-15-900-EB-20-1200	
Laboratory Attendant/Junior Library Attendant	Rs. 800-15-1010-EB-20-1150	
Room Bearer	Rs. 750-12-870-EB-14-940	

All posts carry D.A., C.C.A. and H.R.A. etc. as admissible under the rules in force in the University from time-to-time.

Essential Qualifications For

Senior Programmer

1. At least a Second Class (not less than 50% marks in the aggregate) Master's degree in Mathematics, Statistics, Econometrics, Operational Research, Computer Application or Physics or atleast a Second Class (not less than 50% marks in the aggregate) Bachelor's Degree in Engineering from a recognised Institution, and
2. (i) Atleast 5 years' experience in Computer Programming at a recognised Institution.
   (ii) Knowledge of atleast one of the high level languages like FORTRAN, COBOL, ALGOL, PL/1 and extensive experience of developing programmes for complex problems.

   OR

   A Ph.D. Degree from a recognised institution in computer related disciplines like System Programming, Numerical Analysis, Artificial Intelligence, Theory of Computability and Theory of Formal Languages.

Programmer-cum-Statistician (Central Office)/Programmer (Faculty of Management Studies)

(a) Atleast a second class (not less than 50% marks in the aggregate) Master's Degree in Mathematics, Statistics, Econometrics Operational Research, Computer Application or Physics;

OR

At least a second class (not less than 50% marks in the aggregate) Bachelor's Degree in Engineering from a recognised institution;

(b) (i) At least two years experience in Computer Programming at a recognised institution.

(ii) Knowledge of any of the high level languages like FORTRAN, COBOL, ALGOL, PL/1

Junior Computer/Junior Console Operator

(i) Atleast Second Class (not less than 50% marks in the aggregate) Master's Degree in Mathematical Statistics, Econometrics, Operational Research, Computer Application or Physics.

OR

Atleast Second Class (not lass than 50% marks in the aggregate) Bachelor's degree in Engineering from a recognised institution; and

(ii) Familiarity with Console Operation.

Technical Assistant

Atleast a Second Class (not less than 50% marks in the aggregate) Bachelor's Degree in Mathematics/Mathematical Statistics/Economics/Econometrics / Operational Research / Physics / Chemistry/ Computer applications with at least one specialised training in computer applications.

Senior Technical Officer

(i) M.Sc. in a Science subject (preferably life sciences) with 5 years' experience as a Technical Officer in a Science Department of a University.

OR

(ii) An electrical or refrigeration engineer with Diploma or equivalent in respective field of specialisation and at least 15 years' technical experience of handling and repairing instruments (in case of an Elecronics Engineer) or maintenance and repair of air-conditioning and refrigeration machines (in case of an Air Conditioning Engineer). Experience relaxable in case of candidates with B.E. or equivalent qualifications, or candidates combining experience of both electrical, electronic and refrigeration machinery.

Hindi Assistant

First or High Second Class M.A. in Hindi. Preference will be given to the candidate who has some experience of similar nature (i.e. Literary work/ Research work in an educational institution).

Pharmacist

Matric or equivalent examination. Must have passed the Pharmacist's (Compounder) course from a recognised Institution and must be a registered Pharmacist. Two years' experience in the Profession is desirable.

Tanpura Plaper

1. Sound knowledge of Music
2. Proficiency in performance
3. Ability to tune Tanpura and Sitar
4. Ability to change strings of Tanpura and Sitar and minor Jawari adjustment.

Sarangi Player

(i) Sound knowledge of Music.

(ii) Competence in playing Hindustani Music & Sarangi with particular reference to the accompaniment aspect.

(iii) Proficiency in classical and light classical Music.

Tabla Accompanist/Pakhawaj Player

1. Proficiency in the art of Tabla playing with particular reference to the accompaniment aspects both for vocal (Khyal and Dhrupad gayakies) and instrumental.
2. Degree/Diploma in Tabla/Pakhawaj or should have undergone training in Tabla/Pakhawaj under an established Guru for a period not less than 3 years.
3. 5 years' minimum experience of accompaniment with eminent artists and as a solo player.

Junior Library Attendant

Matric/Higher Secondary.

Technician Grade VII

(i) **Glass Blowing :** Matric with two years experience in Glass Blowing. The candidate should have handled various Glass Blowing Equipments.

(ii) **Automobile :** Should be able to read and write and should have atleast 8 years' experience of repairing of Jeeps, Cars, Three Wheelers and Motor Cycles.

Machine Operators

Microfilming

(i) Ability of handling of Microfilm and/or Microfische Camera.

(ii) Day-to-day maintenance of Camera.

(iii) Three years' experience in Microfilm and Microfische work.

(iv) Education—Middle standard.

Process Camera

(i) Proficiency in handling of Automatic/Semi-automatic Process Camera including Multicolour halftone work.

(ii) Ability of day-to-day maintenance of process equipment.

(iii) 3 years' experience in Trade.

(iv) Education—Middle standard.

Kay Punch Operator

Higher Secondary / Matriculation. Experience in operating Electric Key Punching Machine (Numerical & Alphanumerical) and knowledge of handling computer input/output work.

Driver

Should have valid licence for driving cars and also three wheelers. Professional skill in Driving, Motor Mechanics, general alertness with polite manners.

Room Bearer

Should have passed 8th standard from recognised school / institution with atleast six months' experience.

Cook

Should have passed atleast 8th class from some recognised school/institution with one year's experience.

Laboratory Attendant

Should have passed Matriculation or equivalent examination with science subjects.

The prescribed application forms can be had from the Information Section of the University either personally or by sending a self-addressed envelope (size 13 cm x 28 cm) with postage stamps worth Rs. 5.90 paise.

The candidates will have to produce the original documents relating to their age, qualifications, experience, etc. at the time of interview.

Applications (separate for each post) accompanied by attested copies of Degree, other certificates, marksheets, published research articles should be addressed to the **Registrar**. However, applications for the posts marked asterisk(*) should be sent directly to the Head of the Department/Unit concerned. The last date prescribed for receipt of the applications is **7th March, 1988.**

Note : 1. Canvassing in any form by or on behalf of the candidate will disqualify.

2. The University reserves the right not to fill up any of the vacancies advertised if the circumstances so warrant.

Madan Mohan
REGISTRAR

KUMAUN UNIVERSITY

NAINITAL

Advertisement No. 1782 **Dated : 2-2-198**

Applications for the following posts are invited by 15 March, 1988 on prescribed form obtainable from the Office of the Registrar, Kumaun Universit Nainital-263 001 (U.P.) by sending a self addressed 9" x 6" envelop and crosse postal/Bank draft for Rs. 8/- payable to the Finance Officer, Kumaun University Nainital. Money orders are not acceptable. Candidates who have already applie in response to the **Advertisement** No. 773 dated 4.8.86 and 302 dated 30.5.87 for th post of Lecturers in English, **Advertisement** No. 1335 dated 12.11.86 for the post o Lecturer in Economics, and **Advertisement** No. 953 dated 29.9.87 for the post o Reader in Psychology need not apply again. They may; however send the lates addition to their qualifications changes of address etc. if any.

Sl. No.	Department	Professor	Reader	Lecturer
1.	ZOOLOGY	1R	—	—
2.	FORESTRY	—	1R	—
3.	PSYCHOLOGY	—	1 TLR	—
4.	GEOGRAPHY	—	—	1TLR
5.	ENGLISH	—	—	3R, 1 L
6.	HOME SCIENCE	—	—	1R
7.	DRAWING & PAINTING	—	—	2R
8.	ECONOMICS	—	—	1Lv
9.	PHYSICS	—	—	1Lv

Note : 1=R, implies regular, TLR, implies temporary likely to be regular, L implies leave vacancy

2.* The post of Lecturer Economics Advt. on 12.11.86 as TLR is now co verted in leave vacancy.

Qualifications

1. For the post of Professor Zoology

Either: Eminent scholarship with published work of high quality and active engagement in research and ten years experience of teaching or Research and experience of guiding research of doctorate level;

OR

Outstanding scholarship with established reputation for significant contribution to knowledge.

2. For the post of Readers

(i) Good academic record with a doctorate degree or equivalent published work and active engagement in research or innovation in teaching methods or production of teaching materials; and

(ii) Five years experience of teaching or research including at least three years as lecturer or in an equivalent position.

3. For the posts of Lecturers

(a) a doctorate degree or researc work of an equally high standar in relevant subject.

(b) consistently good academi record with first or high secon class master's degree or a equivalent degree of a foreig University in relevant subject.

Further details regarding qualifications, service terms and permissibl relaxations in qualifications will b provided with application form. Preference will be given to SC/ST candidates if otherwise considered suitable b the Selection Committee. Applicatio form will not be sent by post after 1 March, 1988 and application on plai papers and received after due date ar not acceptable.

R.C. Pant
REGISTRA

COLLEGE OF PHYSICAL EDUCATION

NO. 2, LUDLOW CASTLE SPORTS COMPLEX, SHAM NATH MARG, DELHI-110054.

Ref. No. CPE/Advt./88/

Applications are invited for teachers in the Delhi Administration's sponsored College of Physical Education (University of Delhi), at No. 2, Ludlow Castle Sports Complex, Sham Nath Marg, Delhi-110054, for about six posts of Lecturers' level with the background and experience in the fields of Physical Education, Health Education, Medical Sciences, Sports Psychology, Yoga, Extension Services, English, Hindi, and allied sports disciplines. in the U.G.C. approved grades of the University of Delhi.

The applications on plain paper, complete in all respects (Qualification & experience), with bio-data details, and attested copies of certificates should reach the college office by **March 1, 1988** through Registered AD post or by hand.

Qualifications (Essential)

(A) An M.Phil. or a recognised degree beyond Master's level or published work indicating the capacity of the candidate for independent research work; and

(B) Good academic record with at least second class (C in the seven point scale) Master's degree in Physical Education from an Indian University or an equivalent degree from a foreign University.

Desirable

(A) Diploma or speacialisation in coaching a game or sport from a recognised institution, mainly in activities like Athletics, Gymnastics, Yoga, Basketball, Volleyball, Handball, Football, Hockey, Cricket, Badminton, Table Tennis, Tennis, Swimming, Weight Training, Rowing, and other sports recognised for participation in Olympic, Asian and Commonwealth Games.

(B) Participation at inter-university or inter-state sports competitions.

Provided that for a lecturer teaching yoga, a degree or diploma from a recognised institution will be essential.

Provided that, if the selection committee is of the view that the research work of a candidate as evident from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in (b) above.

Provided further that, if a lecturer in discipline other than Physical Education is required to be appointed in the Faculty of Physical Education, the qualifications prescribed for recuritment to the post of lecturer in the parent discipline will be insisted upon.

Provided **also** that, if a candidate possessing **qualifications** as at (a) above, is not available or is not considered suitable, the college on the recommendation of the selection committee may appoint a person possessing a good academic record on the condition that he will have to obtain an M. Phil. degree or recognised degree beyond the Master's degree within eight years of his/her appointment; failing which he/she will not be able to earn future increments till he/she obtains that degree or gives evidence of equivalent published work of high standard.

Explanation

For determining "good academic record" the following criteria **shall** be adopted:

i. A candidate holding an M. Phil. degree or a **recognised** degree beyond the Master's level should possess at least a second Master's degree; or

ii. A candidate not holding an M. Phil. degree or a **recognised degree beyond a Master's level** should possess high second class Master's degree and a second class in first degree (B.A./B Sc. B.Com.) examination;

iii. A candidate not holding an M. Phil. or a **recognised degree beyond a Master's level** but possessing second class Master's degree should have obtained a first class in the first degree (B.A./B.Sc./B.Com.) examination.

2. Persons having secured marks more than the mid point of the prescribed minimum marks for passing an examination in the second division and the prescribed minimum marks for passing an examination in the first division by a university shall be deemed to having passed that examination in the high second Class.

Note : Preference will be given to candidates with outstanding sports background of actual participation at International, National and Inter-University level competitions; NCC, NSS, Cultural and Adventurous sports activities; work in the organisation of International and National sports activities and research aptitude with practical research projects undertaken in fields like Sports Psychology, Sports Medicine, Physiotherapy, Sports Journalism, Health Education etc.

Dr. J.S. Naruka
OFFICER ON SPECIAL DUTY
PRINCIPAL

JAWAHARLAL NEHRU UNIVERSITY

NEW DELHI—110067

Advt. No. A & E-II/1/88

Applications are invited for the following posts under the UGC's Scheme of Promotion of Area Studies in the Gulf Studies Programme in the Centre for West Asian & African Studies of the School of International Studies of the University.

1. **Professor : (Rs. 4500-7300)**. E.Q. : (a) First or high second class Master's degree in the field of Social Sciences; (b) A.Ph. D. degree or a published work of comparable merit on a subject related to West Asian Studies; (c) Ten years experience of teaching and guiding research in the field of West Asian Studies; and (d) Knowledge of Arabic/Persian.

2. **Associate Professor** : (Rs. 3700-5700). **E.Q.** : (a) First or high second class Master's degree in any of the Social Sciences/Islamic Studies; (b) Teaching/Research experience for five years; (c) Ph.D. thesis in the field of Gulf Studies/West Asian Studies or published work of comparable merit; and (d) working knowledge of Arabic/Persian.

Note : In the event of no candidate found suitable for appointment as Associate Professor, appointment of an Assistant Professor in the Scale of Rs. 2200-4000 may be considered.

3. **Documentation Officer :** (Rs. 700-1600 pre-revised). E.Q. (a) A first or high second class Master's degree in the field of Social Sciences or in Arabic/Persian or Islamic Studies; and (b) Knowledge of Modern Arabic/Persian Language. D Q. : Master's degree in Library Science with first class or high second class.

Note : The post is reserved for Scheduled Caste candidate interchangeable with Scheduled Tribe, if SC/ST candidate is not found suitable the general candidates would be considered for appointment against the vacancy.

Application forms alongwith necessary details may be obtained free of cost in person or by sending a self-addressed envelope (23 cm x 10 cm.) duly stamped, to the Deputy Registrar (Aca. & Estt.), Room No. 204-B, Administrative Block, Jawaharlal Nehru University, New Delhi-110067. The applications in the prescribed form complete in all respect duly forwarded by the Competent Authority (for those in service) should reach this University by **7th March, 1988**.

(Abbreviations—EQ-Essential Qualifications, DQ-Desirable Qualifications).

SCHOOL OF PLANNING AND ARCHITECTURE

NEW DELHI-110002.

(Deemed to be a University under Section 3 of UGC Act)

APPOINTMENT

Applications are invited from Indian Nationals for the Post of Registrar in the School of Planning and Architecture, New Delhi.

Pay Scale : Rs. 3000-100-3500-125-5000 (Likely to be revised).

Age limit : Below 50 years.

Qualifications

Essential

(i) A Second Class Master's Degree of a recognised University or a Second Class Bachelor's Degree of a recognised University with Master's Degree of a recognised University.

(ii) Ten Years' experience in an executive position in administration and financial affairs and control in recognised institution/organisation.

Desirable

Familiarity with admissions, examinations, committees, council meetings, Sensitiveness and constructive approach to the problems of students, personnel and faculty and capacity to develop corporate life.

Service Conditions and Benefits

The post carries benefits of C.P. Fund-cum-Gratuity/ G.P. Fund - cum-Gratuity-cum-Pension and Central Government Health Scheme Services on appointment. The period of probation is one year. Allowances are as admissible to comparable posts in the Government of India.

Procedure for applying

Application on prescribed form accompanied by attested copies of certificates and testimonials and a crossed Indian Postal Order of Rs. 5/- (non refundable) as the application fee (SC/ST candidates are exempted from the payment of the fee) in favour of School of Planning and Architecture, New Delhi payable at New Delhi Post Office should reach the Registrar of the School by **7th March, 1988**. Request for form must be accompanied by self-addressed un-stamped 25 cm x 12 cm envelope. Applicants who are in the employment of Government/Semi-Govt. Undertaking/Autonomous Body must send their application through proper channel. Candidates from outside Delhi called for interview will be paid IInd Class Rail fare for both the journeys (within India).

GURU GHASIDAS UNIVERSITY

RISHI KUTIR, NEHRU CHOWK,
BILASPUR (MP)

No. 1052/UDT/87-88 Dated : 8.2.88

Advertisement

Applications in the prescribed form are invited for the following posts. Forms with details of the prevailing UGC qualifications will be supplied on request, which should be accompanied by a self-addressed stamped envelope with postage stamps of Rs. 4/-. Seven copies of application, complete in all respects, must reach the undersigned latest by **7-3-88**. The Dearness Allowances and other perquisites will be as per University Statutes.

1. **Professor** : One post each in Psychology, Political Science, Physics, (Rs. 1500-2500)* Hindi.

2. **Lecturer** : One post each in Psychology, Political Science, Physics, (Rs. 700-1600)* Hindi.

(The post of lecturer in Hindi is reserved for SC/ST candidates).

*(Subject to revision of pay scale from time to time).

Qualification

(a) **Essential** : As prescribed by the University Grants Commission, New Delhi for Professor, Reader and Lecturer in the Universities.

(b) **Desirable**

(i) **For Professor and Lecturer in Psychology, Politieal Science**

Preference shall be given to candidates specialised in or having experience of research and studies in the field of weaker section of society particularly tribals, Harijans and women, and in rural development.

(2) **For Professor and Lecturers in Physics :**

Preference shall be given to candidates having experience of studies or research in the field of appropriate technology.

2. No. T.A./D.A. will be admissible to the candidates if called for interview. The Selection Committee may consider the case of an eminent/suitable person in absentia.

3. Applicants who are in the employment Govt./Semi Govt. Organization/ Educational Institute or of any Govt. undertaking must send their applications through proper channel but, advance copy should reach in time.

4. The University reserves the right not to fill up the posts.

REGISTRAR

DR. YASHWANT SINGH PARMAR UNIVERSITY OF HORTICULTURE AND FORESTRY

SOLAN

Advertisement No. 1/88

Applications on the prescribed form are invited for the following posts :

I. Professor (Resource Management)-(1) in the grade of Rs. 1500-2500

Qualifications

(1) Ph.D. in Forestry/Biology with specialization in wood science and utilization/logging and wood processing/forest products/medicinal and aromatic plants with consistently good academic record.

(2) 10 years' teaching / research/ extension education experience in the subject out of which atleast 5 years experience should be as Associate Professor / equivalent.

(3) Significant contribution as evidenced by publications, articles in a journal of repute.

(4) Ability to provide leadership to the department.

II. Posts in the Grade of Rs. 1200-1900

1. Deputy Director of Agro forestry–(1)
2. Associate Professor of Resource Management—(1)
3. Associate Professor of Genetics–(1)

Qualifications–General

(1) Ph.D. degree or equivalent in the subject with consistently good academic record.

(2) Five years' teaching / research/ extension education experience in the subject.

(3) Significant contribution as evidenced by publications, articles in a journal of repute.

Qualifications–Specific

Post at Sr. No. 1 : Ph.D. in forestry.

Post at Sr. No. 2 : Ph.D. in forestry/biology with specialization in wood science and utilization/logging and wood processing/forest products/medicinal and aromatic plants.

Post at Sr. No. 3 : Ph.D. in Genetics and preferably population genetics.

Note : For posts at Serial No. I and II (1 and 2) :

In case, a suitable candidate with Ph.D. in forestry/biology is not available, then a candidate having M.Sc. forestry/M.Sc. with AIFC with consistently good academic record will also be eligible.

III. Posts in the Grade of Rs. 700-1600

1. Assistant Agrostologist–(1)
2. Assistant Scientist of Mycology and Plant Pathology—(1)
3. Assistant Horticulturists—(2)
4. Assistant Plant Phsiologist—(1)
5. Assistant Floriculturist—(1)
6. Assistant Professor of Resource Management—(1)

Qualifications

Post at Sr. No. 1 : Ph.D. degree in Agrostology.

Post at Sr. No. 2 : Ph.D. in Mycology and Plant Pathology with specialisation in fruit pathology.

Post at Sr. No. 3 : Ph.D. in horticulture/ pomology with specialization in fruit crops.

Post at Sr. No. 4 : Ph. D. in plant Physiology.

Post at Sr. No. 5 : Ph. D. in floriculture/landscaping / horticulture with specialization in floriculture and/or landscaping.

Post at Sr. No. 6 : Ph. D. in forestry/ biology with specialization in wood science and utilization/logging and wood processing / forest products / medicinal and aromatic plants.

Note : For posts at Sr. No. III (1 to 6)

(i) Ph.D. degree in the concerned subject relaxable to M.Sc./M.Sc. with AIFC with consistently good academic record.

For posts Sr. No. I, II (1 and 2) and III (1 to 6)

(ii) In case a candidate selected for appointment holds Master's degree, he will have to obtain Ph. D. degree within eight years of the date of appointment failing which he shall cease to earn increment(s) till he obtains Ph.D. degree.

General Instructions

1. Higher pay admissible in the case of meritorious candidates.

2. Applicants already in service must send their applications through proper channel. An advance copy may however be sent direct to avoid delay.

3. Applications received after the last date fixed therein may be rejected without making any reference to the candidates. Applications on plain paper are also liable to be rejected.

4. The University reserves the right not to fill up any of the posts advertised.

5. Benefits of Contributory Provident Fund-cum-Gratuity and leave etc., as per University rules.

6. Other allowances on pay will be permissible as per rules of the University from time to time.

Application forms can be had from the Registrar, Dr. Yashwant Singh Parmar University of Horticulture and Forestry, Post Office Nauni, Distt. Solan HP-173230 by sending application fee of Rs. 10/- in the shape of crossed Indian Postal Order(s) payable to the Comptroller of this University alongwith a self-addressed envelope of size 23 x 10 cms.

Applications complete in all respect with attested copies of testimonials should reach the Registrar by **12.3.1988**.

Candidates applying from abroad may send their applications on plain paper giving particulars of date of birth, examinations passed (from High School onwards) with division and percentage of marks obtained in the various examination teaching / research / extension education experience with a list of publications, if any, so as to reach the Registrar by **27.3.1988**.

B.S. Nainta
REGISTRAR

ALI YAVAR JUNG NATIONAL INSTITUTE FOR THE HEARING HANDICAPPED

KISHENCHAND MARG, BANDRA
(WEST), BOMBAY 400 050.

(An Automomous Registered Society Under the Administrative Control of Ministry of Welfare, Government of India).

Invites applications for the post of Computer Programmer :

Educational Qualifications & Experience

Master's degree in Science, Maths, Statistics, Operations Research, Commerce or Economics with post-graduate diploma in Computer Science or 3 years experience. (Reference to Degree/Diploma means at least 60% marks in the Aggregate or equivalent).

Pay Scale	Total Remuneration
Rs. 2000-3500/-	Rs. 2810/-

Age : Not exceeding 30 years.

Applications giving full details such as Name in full, Postal address, Date of Birth, Educational Qualification with xerox copies of certificates, Details of experience should be forwarded to the Director, Ali Yavar Jung National Institute for the Hearing Handicapped, Opp. Bandra Telephone Exchange, K.C. Marg, Bandra Reclamation, Bandra (West), Bombay 400 050, within 15 days from the date of advertisement. Incomplete applications will not be considered.

PUNJABI UNIVERSITY

PATIALA

Advt. No. 70/PRO/Rect./87

Applications are invited for the following posts, so as to reach the Registrar, on or before **7.3.88.**

1. **Professor** : (One each in Social Work and Dr. Ganda Singh Chair of Punjab Historical Studies).

Grade : Rs. 4500-150-5700-200-7300.

2. **Readers :** (Two in Law and one each in Punjabi, Psychology, Computer Science & Applications and Political Science)

Grade : Rs. 3700-125-4950-150-5700.

3. **Lecturers** : (Two in Business Management and one each in Sanskrit, Biotechnology, German, Music Instrumental and Directorate of Correspondence Courses in the subjects of Pol. Science, History, Economics, Hindi, Punjabi, Defence Studies-cum-History, Public Admn-cum-Pol. Science). Three lecturers in Law.

Grade : Rs. 2200-75-2800-100-4000.

4. **Executive Engineer : One**

Grade : Rs. 1400-60-1700/75-2000/100-2100.

Note

1. Candidates who have already applied for the post of Professor of Social Work, need not apply again,
2. The Vice-Chancellor could also place before the Selection Committee names of suitable persons for the post of Professor.
3. It is not obligatory to call for Interview every candidate who possesses the essential qualifications.
4. The number of vacancies may change.
5. Candidates must possess working knowledge of Punjabi.
6. The Selection Committee might relax the qualifications / experience in exceptional cases.
7. Details of qualifications, specializations etc., will be supplied alongwith the application form.

APPLICATION FORMS can be obtained from the Head of our Publication Bureau on payment of Rs. 5/- at the counter OR by sending IPO for Rs. 5/- in favour of the Registrar, alongwith a self-addressed envelope (25 x 10 cms) with postage worth Rs. 3.40 superscribing on it "APPLICATION FOR THE POST OF————————"

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इन्दिरा गांधी राष्ट्रीय मुक्त विश्वविद्यालय
INDIRA GANDHI NATIONAL OPEN UNIVERSITY

YMCA CULTURAL CENTRE, 1, JAI SINGH ROAD, NEW DELHI-110001

Applications are invited from Indian citizens for filling up the following posts in the Indira Gandhi National Open University. The posts carry the scales of pay indicated against each post plus allowances as admissible under the University rules.

1. DEPUTY DIRECTOR/READER

(Radio and Television Production)

Scale of Pay : Rs. 1200-50-1600-60-1900 (Pre-revised)

Qualifications & Experience

Essential

(a) Master's Degree from a recognised University;
&
(b) At least ten year's experience in planning and production of Television/Radio programmes of which at least five years should be as an independent Producer in a Broadcasting Organisation.

Desirable

(a) Experience in production of educational TV/Radio programmes;
(b) Teaching experience at College/University level; and
(c) Training in Television production in any reputed Institution of India or abroad.

Age Limit : 50 years

2. PRODUCTION ASSISTANTS

Scale of Pay: Rs.1400-40-1800-EB-50-2300 (Revised)

Qualifications & Experience

Essential

(a) Degree from a recognised University;
OR
Diploma from the National School of Drama or equivalent qualifications (For Radio); &
(b) Degree from a recognised University;
OR
Diploma from the FTII, Pune in Cinema (For TV)

Professional

At least two years' experience in production of Radio/TV/Film/Theatre.

Desirable

(a) Practical experience in production of educational Radio/TV programmes; and
(b) Ability to handle a variety of subjects and formats for production of Radio/Audio & TV/Video programmes.

Age Limit : 30 years

3. TECHNICAL ASSISTANTS

Scale of Pay : 1400-40-1800-EB-50-2300 (Revised).

Qualifications & Experience

Essential

(a) Diploma in Electrical Engineering, Electronics or Sound from a recognised Institution; and
OR
(b) At least two years' experience of handling TV/Sound equipment, experience of operation of Radio & TV equipment & Video/Film equipment.

Desirable

(a) Knowledge of Radio & TV engineering; and
(b) Good knowledge of broadcasting in India.

Age Limit : 30 years.

4. ASSISTANT LIBRARIAN

Scale of Pay : Rs. 700-40-1100-50-1600 (Pre-revised).

Qualifications

(a) Good academic record with at least a high Second Class Master's Degree in a subject other than Library Science; and
(b) Master's Degree in Library Science with First or Second Class.

Preferential Qualifications

Persons working in distance teaching Institutions will be preferred.

5. PROFESSIONAL ASSISTANT

Scale of Pay : Rs. 1400-40-1800-EB-50-2300 (Revised)

Qualifications

M.A./M.Sc./M.Com. with a Degree in Library Science

OR

B.A./B Sc./B.Com. with a Degree in Library Science plus four years' experience in a University Library.

6. SEMI-PROFESSIONAL ASSISTANT

Scale of Pay: Rs. 1350-30-1440-40-1800-EB-50-2200 (Revised).

Qualifications

Graduate with two years' Library experience

OR

Matric/Higher Secondary plus five year's University Library experience.

OR

Matric/Higher Secondary plus Certificate in Library Science plus four years' University Library experience

7. ANALYSTS

Scale of Pay : Rs. 700-40-900-EB-40-1100-50-1300 (Pre-revised)

Qualifications

Essential

(a) Post-Graduate with at least 55% masks in Economics/Statistics/Education/Psychology; &
(b) Experience in computer programming, data processing or planning and management of educational Institutions.

Desirable

Background of Research Methods in Social Sciences

Age Limit : 35 years.

GENERAL CONDITIONS

(i) Candidates called for interview from outside Delhi would be paid single second class railway fare to and fro Delhi by the shortest route from their place of residence/work.

(ii) 15% of the total number of vacancies are reserved for SC candidates and 7½% for ST candidates respectively.

(iii) Age relaxable by five years for SC/ST candidates.

(iv) Persons working in Government/University/Public Undertakings should send their applications through proper channel.

HOW TO APPLY

Applications on foolscap sheets of paper neatly typed or handwritten giving complete bio-data, the format of which is given below, along with attested copies of educational/technical qualifications, experience, etc. should be addressed to the **Registrar, Indira Gandhi National Open University, YMCA Cultural Centre, 1, Jai Singh Road, New Delhi-110001** and should reach latest by **16.3.1988**. A recent passport size photograph, duly signed by the candidate, must be affixed at the right hand corner of the application.

Post applied for..
Scale of Pay..
Advertisement No. & Date..
1. Name..
2. Father's Name..
3. Date of Birth & Age..
4. Permanent Address..
5. Address for Communication..
6. Whether belonging to SC/ST/Ex-Serviceman..
7. Educational Qualifications..

PHOTOGRAPH

Examination Passed	University	Institution	Subjects	Division	Percentage of Marks	Year of Passing

8. Professional/Technical Qualifications

Examination Passed	University	Institution	Subjects	Division	Percentage of Marks	Year of Passing

9. Details of Training, if any..
10. Experience..
Name and Address of Employer(s)..
Period of Employment (From-To)..
Basic Pay, Scale of Pay & Total Emoluments Per Month..
11. Designation & Nature of Duties (in brief)..
12. Any other information..
13. Signature of the Applicant..

In case, an applicant wishes to apply for more than one post, separate application for each post should be sent. Canvassing of any sort would disqualify candidature.

PLEASE SUPERSCRIBE THE NAME OF THE POST AND POST NUMBER ON THE TOP OF THE ENVELOPE AS WELL AS ON THE APPLICATION.

Incomplete and illegible applications are liable to be rejected.

Note

1. The University reserves the right to restrict the number of candidates to be called for the interview.
2. It would be open to the University to consider the names of suitable candidates, who may not have applied. Relaxation of age and any of the qualifications may be made in exceptional cases in respect of all the posts on the recommendations of the Selection Committee.
3. The University reserves the right not to fill up any of the vacancies advertised if the circumstances so warrant.

Advertisement No. 6/Admn./1987-1988

REGISTRAR

GUJARAT AGRICULTURAL UNIVERSITY

SARDAR KRUSHINAGAR-385506
DIST. BANASKANTHA

Advertisement No. 1/88.

Dated : 6.2.1988

Applications on prescribed form are invited for the following posts of principals of following Colleges in Gujarat Agricultural University. The candidates who fulfil the qualifications and desire to apply may sent their application forms alongwith six copies of authenticated bio-data through proper channel to the Registrar, Gujarat Agricultural University, Sardar Krushinagar-385506, Dist. Banaskantha.

Name of the Post and Pay Scale	College
1 : **Principal** Rs. 1500-60-1800-100-2000-125/2-2500 plus other allowances as per University rules with rent free accommodation.	(a) College of Agriculture. (b) College of Veterinary Science and A H.

Application forms alongwith details regarding qualifications, experience and other terms and conditions for above posts can be had from the Registrar, Gujarat Agricultural University, Sardar Krushinagar-385506, Dist. Banaskantha on cash payment of Rs. 2/- (Money order will not be accepted) or by sending crossed Indian Postal Order of equal amount issued in favour of "Comptroller, Gujarat Agricultural University, Sardar Krushinagar", alongwith the self-addressed enveloped (23 x 11 Cms.) affixed with Rs. 2.20 paise postage stamps.

The applications duly completed in all respects should reach to the Registrar at above address on or before **31-3-1988** invariably through proper channel alongwith Indian Postal Order of Rs 50/- in favour of Comptroller, Gujarat Agricultural University, Sardar Krushinagar, Dist. Banaskantha, Gujarat.

The candidates already in the services of this University may also apply through their respective officers in prescribed form with six copies of authenticated bio-data without Indian Postal Order. All candidates called for the interview will have to attend the same at their own cost. Kindly note the following instructions :

1. Incomplete application will not be considered.
2. The University reserves its full right to fill up or not to fill up any or all the posts and to give or not to give appointment to the candidates selected by the Selection Committee.
3. Canvassing in any forms will completely disqualify a candidate.
4. Selected candidate for above posts is transferable at any campus or college of the University and ask between Education, Research and Extension Activities/Project and he will have to resign from previous employment.

R. J. Patel
REGISTRAR

NATIONAL INSTITUTE OF HYDROLOGY

JAL VIGYAN BHAWAN
ROORKEE

Advertisement No. 1/88-NIH

Dated : Jan. 29, 1988

Applications are invited for the following posts in National Institute of Hydrology (A Govt. of India Society) Roorkee from Indian Nationals satisfying qualifications and experience laid down therefor :

Scientist 'E' : 6 posts in the area of :

Surface Water Hydrology	– 4 Posts
Drought Management Studies	— 1 Post
Drainage	— 1 Post

Scale of Pay

Rs. 3700-125-4700-150-5000. Total emoluments at the initial of the scale is Rs. 4155/- excluding H.R.A.

Age : Below 45 years

Qualifications : 1. High Academic Qualifications in Civil Engineering or Agricultural Engineering with specialisation in Hydrology or Water Resources, or equivalent.

2. Ph.D. Degrees desirable.

3. Experience in Field Problems, Corporate membership in professional Institutions desirable.

4. About 7 years experience in teaching, research, design or planning.

5. Proven ability of conducting and guiding research.

Note : 1. Persons selected can be appointed on duputation basis also.

2. Those candidates who have applied against advertisement No. 1/87-NIH dated Jan. 22, 1987 and No. 6/87-NIH dated September 1, 1987 need not apply again.

The above mentioned posts carry usual allowances as admissible under the Central Government Rules. Age will be relaxable for persons already in Service in the Institute and other Govt./Semi-Govt./Autonomous organisations as well as candidates belonging to SC/ST community, retrenched employees of Defence Services and physically handicapped persons, as per rules of the Govt. of India.

Age will be determined as on 15.3.1988 (for candidates applying against this advertisement).

Persons already employed in Govt./Semi-Govt./Autonomous bodies should apply through proper channel. Applications not forwarded through proper channel may not be considered.

Candidates applying for more than one post should use separate application form for each post and remit fees separately for each post.

Application forms may be obtained by 29.2.1988 from the Chief Administrative Officer, National Institute of Hydrology, Jal Vigyan Bhawan, Roorkee-247 667 (U.P.) by sending a self-addressed envelope measuring 23 cm x 10 cm. Application forms duly completed in duplicate with copies of all testimonials alongwith an application fee in the form of Indian Postal Orders of Rs. 8/- (SC/ST candidates are exempted from payment of fee) payable to the National Institute of Hydrology at the Roorkee University Post Office should reach the Chief Administrative Officer, National Institute of Hydrology, Jal Vigyan Bhawan, University of Roorkee Campus, Roorkee-247 667 (UP) on or before **15.3.1988.**

Job Location : Anywhere in India.

PONDICHERRY UNIVERSITY

128, RANGAPILLAI STREET
PONDICHERRY 605 001

Advt. No. 1/88

Dated : 27-1-1988

RECRUITMENT FOR FACULTY AND ADMINISTRATIVE POSITIONS

Pondicherry University, set up under Parliament Act No. 53 of 1985 invites applications in the prescribed form for the following faculty/Administrative positions in University Grants Commission scales of pay and allowances.

FACULTY POSITIONS

(a) Professors — In the University Schools of Management & Ecology and the Departments of Chemistry, Biology, Physical Education & Sports, Sanskrit and Nehru Professor in the Institute of International Studies.

(b) Readers — In the University School of Management, Departments of Chemistry, Biology, History, Physical Education & Sports, Sanskrit, ELT Centre in the Department of English and in the Institute of International Studies.

(c) Lecturers — In the University Departments of History, Biology, Physical Education & Sports, Sanskrit and in the Institute of International Studies.

(Note : in respect of the "Institute of International Studies : Those possessing equivalent qualifications in the disciplines/areas of History, Politics, Sociology, Area Studies, International Law, International Economics, Journalism are also eligible to apply).

(d) Librarian (Professor's Scale)

ADMINISTRATIVE POSTS

(a) Deputy Registrars
(b) Assistant Registrars
(c) Public Relations Officer
(d) Assistant Finance Officer
(e) Executive Engineer
(f) Assistant Engineer
(g) Assistant Horticulturist

Being a Central University, recruitment will be made by the statutory Selection Committees purely ON THE BASIS OF MERIT and ON ALL-INDIA BASIS.

Reservation

Reservation to candidates of SC/ST and physically handicapped as per Government of India rules.

How to Apply

Printed application forms alongwith details of qualifications and other particulars are available in the University office and will be sent on requisition.

Candidates who wish to apply for any of the faculty/administrative positions mentioned above may get the required application forms, etc., by sending a written requisition with clear postal address accompanied by Bank Draft or Indian Postal Order to the value of Rs. 10/- (Rs. Ten only) towards the postage and stationery charges, drawn in favour of the Finance Officer, Pondicherry University, Pondicherry 605 001 payable at Pondicherry.

All requisitions, however, should be addressed to the "Registrar, Pondicherry University, 128, Rangapillai Street, Pondicherry 605 001. (Each post needs a separate application and a separate Bank Draft or Indian Postal Order).

Last Date for Requisition of Application Forms

The last date for receipt of requisition for application forms with Bank Draft/Indian Postal Order for Rs. 10/- is **15th March, 1988.**

Last Date for Receipt of Filled Application Forms

The last date for filled up application forms to reach the Registrar, w Registration Fee as noted below **15th April, 1988.**

Registration Fee

Application forms duly filled w copies of certificates, testimonials e alongwith Registration fee for each p of Rs. 50/- (Rs. Fifty only) for all ca dates by Bank Draft on any Nationa Bank at Pondicherry or Indian Pos Order favouring the Finance Offic Pondicherry University, Pondiche should reach the Registrar on or bef. **15th April, 1988.**

Exemption for SC/ST Candidates fr any Fee

SC/ST candidates are not required remit any fee towards postage station charges of Rs. 10/- nor Registration f of Rs. 50. It is enough if such applica send attested copy of the SC/ST ce ficate alongwith the application.

Payment for Travel

Outstation candidates selected interview will be paid to and fro sec class fare by the shortest route.

CANVASSING IN ANY FORM WI BE A SERIOUS DISQUALIFICATI

P.R. Ramanathan, I

REGISTRAR

SHIVAJI UNIVERSITY

KOLHAPUR

Advertisement

Applications are invited for the post of SYSTEM ANALYST for the Computer Centre of the University.

Qualifications : (1) Master's level degree in Computer Science with specialisation and experience in System Analysis OR (2) Engineering Graduate OR a Post-graduate in Physics OR Mathematics with a Post-graduate Diploma in which System Analysis is a subject, and with some experience in System Analysis.

Pay Scale : Rs. 1100-50-1600 and other allowances admissible as per r

Duration : So long as the Centre c tinues.

The person appointed will have undertake teaching work when relevant courses are started at Centre.

Application on plain paper st particulars such as Full Name, D Birth, Qualifications, Experience a with copies of testimonials should the undersigned on or before 7.3.19

Dr. B.P. S
REGISTR

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University News

MONDAY, FEBRUARY 29, 1988

Rs. 1.50

esident R. Venkataraman arriving in academic procession to deliver the Convocation Address at the University of Kashmir

G. B. Pant University of Agriculture & Technology

PANTNAGAR-263145, U.P.

ADMISSION NOTICE

A competitive entrance examination for selection of candidates for admission to the First Year of the following Academic Programmes will be held on Sunday the 1st May 1988, from 10 a.m. at Agra, Allahabad, Delhi, Hyderabad, Lucknow, Roorkee, Varanasi, Kanpur and Pantnagar Centres.

A—Bachelor's Degree Programme	**Minimum Eligibility Qualifications**	**Age**
1. B.Sc. Ag. and A.H. 2. B.Sc. (Forestry) 3. Bachelor of Fisheries Sc.	Intermediate Agriculture Science (Biology or Maths) from U.P. Board Allahabad or equivalent examination.	22 years on 30.11.88 (3 years relaxation for SC/ST/BC candidates only)
4. B. V.Sc. and A.H.	Intermediate Agriculture/Science with Biology from U.P. Board, or equivalent examination.	
5. B.Sc. Home Science (for girls only)	Intermediate Science (Biology or Maths)/Agriculture from U.P. Board, or equivalent examination.	

Candidates appearing in the above Board's examination in 1988 are also eligible to appear in the entrance examination provided their results are positively declared by 5th July 1988, otherwise they will stand disqualified.

B.—Master's Programmes in 44 Majors in the areas of:

1. Agriculture
2. Veterinary Sciences
3. Civil/Electrical/Mechanical/Agricultural Engineering
4. Basic Sciences
5. Food Sciences; and
6. Home Science

Minimum Eligibility Qualifications

Bachelor's Degree in Agriculture/Veterinary Sciences/Civil, Electrical, Mechanical, Aricultural, Engineering/Basic Sciences, (Physics, Chemistry, Maths, Biology) Home Science, as the case may be with 55% marks in aggregate or an equivalent OGPA from a recognized University with not more than one third division at High School or Intermediate level.

C—Ph.D. Programmes in 29 Majors in the areas of:

1. Agricultural Sciences
2. Veterinary Sciences
3. Agricultural/Civil/Electrical/Mechanical Engineering
4. Food Science; and
5. Basic Sciences.

Minimum Eligibility Qualifications

Master's degree in Agriculture/Vety. Sciences/Agricultural. Civil, Electrical, Mechanical Engineering/Food Science/Basic Sciences, as the case may be. in First Division from a recognized University with at least second class in Bachelor's degree and not more than one third division at High School or Intermediate level.

For full details, the Information Brochure and Application Form, prescribed separately for Undergraduate, Master's and Ph.D. programmes, can be obtained by sending an 'ACCOUNT PAYEE' Bank Draft for Rs. 10/- in favour of G.B. Pant University of Agriculture & Technology, Pantnagar on State Bank of India, Pantnagar Branch (Code-1133) or United Commercial Bank, Pantnagar, with a self-addressed envelope of 10"x7" size bearing postage stamps of Rs. 4.00 by Unregistered Parcel, or may be obtained on payment in cash at the Counters set up in the Admission Cell at Pantnagar.

Last Date and Examination Fees : 10th March 1988 with the prescribed Fee of Rs. 100.00 for Undergraduate Programmes and Rs. 100.00/120.00 (as the case may be) for P.G. Programmes. Applications delivered after 10th March 1988 but not later than 25th March 1988 must be accompanied with an additional late fee of Rs. 50.00 for Pantnagar Centre only.

NOTE

This is to notify for information of all concerned that the minimum duration of the B.Sc. Ag. & A.H programme offered at this University has been increased from 3 years to 4 years with effect from the academ session 1988-89. Accordingly, the maximum duration of this programme will now be 6 years. In respect o other academic programmes no change has been made.

O.S. Misra
REGISTRAR

UNIT

UNIVERSITY NEWS

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Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association.

Editor :
SUTINDER SINGH

Who Has Failed : The UGC, the Academicians or the Politicians ?

J.N. Kapur*

The University Grants Commission was given the responsibility for coordinating and maintaining standards in higher education in India. Though the standards in some sectors of higher education and in some institutions have risen, in general standards in higher education have neither been coordinated nor maintained. It is therefore obvious that the UGC has failed in its primary responsibility. The reason is also equally obvious The UGC was neither given adequate powers nor adequate funds to discharge the responsibility given to it.

Education was a state subject and every state government has the girht to start any number of ill-equipped universities and give these universities the right to give the highest degrees. The state governments utilized this right in full measure. New colleges and universities were started for serving the political interests of those politicians who happened to be in power. All educational norms were thrown to the wind in this process. The UGC looked as a helpless spectator. It could not stop the birth of the new universities. It could only ignore them or refuse to provide them funds. This could only ultimately harm the students of these universities and help the low standards of these universities to go down still further.

The UGC could also refuse to recognise the degrees given by these universities, but this may not have been effective as the state governments would have still recognised the degrees given by these universities and given jobs on the basis of these degrees.

If the framers of the constitution were really serious about standards in higher education, they could have given the UGC the powers of accreditation so that the UGC could give or take away the powers of giving any specified degrees from any university.

Perhaps the framers of the constitution, most of whom had made great sacrifices in the freedom struggle did not anticipate that the politicians of the succeeding generations will be willing to sacrifice standards in education for the sake of narrow personal or political gains.

The UGC could have still exercised the right of accreditation under its overall responsibility of maintaining and coordination of standards it was given by the constitution and then the matter could be settled by the Supreme Court.

The UGC however did not exercise this right and almost surrendered it by default. It may be that the UGC felt that it could exert sufficient pressure through its grants—giving powers or it could be due to its desire to avoid political confrontation. It is also possible that things were not so bad in the beginning and by the time the UGC realised the gravity of the situation, it was already too late to act.

Whatever may have been the intentions of the framers of the constitution, the successive central governments went on clipping the wings of the UGC. First prestigeous national laboratories were set up, outside the university system, with funds much larger than those given to

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**Hony. Visiting Professor, IIT, Delhi and University of Delhi.*

the UGC, then IIT's medical institutes, IIM's and agricultural universities were set up outside the purview of the UGC so that the UGC could spend only 10-20% of funds for higher education and with these limited funds, it had the responsibility of maintaining standards for 90% of the relatively less motivated students. Even here it had the responsibility of complete funding of central universities, so that the funds at its disposal for the remaining universities responsible for higher education of the vast majority of students were very small indeed.

The UGC is a body consisting mostly of academicians and its advisory committees consist almost entirely of academicians. As such if there are any weaknesses, the academic community cannot absolve itself of the responsibility.

Thus the UGC, wanting to encourage research, insisted that every new lecturer should be a Ph.D. The academic communities of some universities responded by producing a large number of spurious P.h.D's. The UGC did not interfere because of its respect for the autonomy of these universities and the vested interests in these universities went on mass producing Ph.D's. Feeble voices were raised in some quarters against Ph.D. rackets but these were not strong enough to stem the tide of mediocrity.

It is the constitutional responsibility of the UGC to maintain standards. It is also the moral and professional duty of every academician to maintain standards. In fact everywhere in the world, the academic community itself discharges this responsibility very effectively. This is as it should be and the UGC or the government should not be required to interfere. Though in some universities, Ph.D. standards were maintained, in many others these were completely disregarded by powerful individuals and groups. The UGC's plan for raising standards was defeated by vested interests. The academic community only blamed the UGC for not being realistic enough to realise the powers of these vested interests in advance.

Similarly, the UGC introduced a Merit Promotion Scheme. It was a very laudable idea that no deserving teachers should stagnate in his position because no higher level positions were available. However the standards of promotion were to be same as those for regular promotions. Nevertheless what happened in practice was something which was not desired. Senior professors and vice-chancellors worked together in the special selection committees for promoting almost everybody who had spent a certain number of years as lecturers or readers irrespective of the teaching and research work they had done. Everybody went out of his way to be kind and generous to those who had stagnated in their positions; nobody bothered to see that quite a number of them had also stagnated in their knowledge. Few academicians bothered about the effect this policy of time-bound promotions would have on the psychology of good teachers and researchers. The following feeling spread widely: "Why should I teach well and why should I do research when I can get my promotion even otherwise. I can do my routine teaching with half of my energy, why should I not make some more money by using the remaining energy in some other work ?"

No educational system can perform well unless the system is so designed that every student and every teacher is motivated to put in his or her best efforts. Here due to the weakness of the senior academic community, whatever motivation was left was sucked out of the system.

Almost overnight the number of professors in the universities was doubled and professorship was immediately devalued. The percentage of professors in Indian universities became higher than in many British and American Universities. The experts and the vice-chancellors obliged persons in a big way and standards were thrown to the wind in the process. It appeared that everyone was interested in individuals and nobody was interested in the system.

There is no doubt that some of the persons promoted in the process richly deserved their promotions, but it is also equally true that many undeserving persons did also got promotions in this process. What is worse is that some of these persons will now sit in judgement over other younger persons.

A similar scheme of merit promotion operates in all foriegn universities all the time, but their promotions have to be earned the hard way. Every academician jealously guards standards and all promotions are made in an open manner. Here academicians demolished standards and blamed UGC for it.

The UGC should have refused to recognize promotions which were blatantly unjustified and should have laid down more strict high standards for further merit promotions e.g. all merit promotions could have been done at a national level. Instead of taking courageous steps, the UGC decided to withdraw the scheme. A good idea was defeated in its implementation by the academicians.

Similarly, the UGC launched upon a very good programme of improvement of faculty of undergra-

(*Continued on page 7*)

VOCATIONAL EDUCATION

K. N. Bhatnagar*

Lenin, speaking at the First All-Russian Congress on Education rightly said. "A school outside of life, outside of politics is a lie and hypocrisy". Almost a similar view was expressed by Prof. Yash Pal, Chairman of the University Grants Commission at the recent Conference of Education Ministers in New Delhi when he passionately reiterated that vocational training should be made a part and parcel of the entire educational process right from school to college and university stage, and should be intrinsically integrated with the educational system of the country as such.

The prestige of an educational establishment in Russia for example depends first of all on how strong its bonds are with life and consequently how well it trains specialists capable of bringing benefit to the people.

It thus becomes apparent that vocationalization of education is not to be seen as some stream, faculty or force added 'ab extra' to the existing courses in a school or a college system with a view to attracting students of weaker sections of society in the name of employability, or to the so-called less intelligent or mediocre students, but as a training of each and every individual of society, right from primary to university stage, to make him fit for the life he has to lead—each individual fit in his proper place like pieces in a perfect orchestra—ensuring a systematic and progressive 'individuation' of his moral, social and spiritual values, securing harmonious development of his personality to enable him to contribute his best to the society at large and thus become an integral and organic part of the social system, or the body politic.

Why Vocationalisation ?

As the present pattern of education in India has evolved out of a system existing in the 'British days', a few words regarding education in British India will not be out of place. In the initial period of subjugation, the primary aim of the 'rulers' was to fabricate a structure of education in India which could turn out 'clerks' or their equivalents who were so much needed for the bureaucratic functioning of the Government machinery. Mr. Arther Howell the famous British historian remarks, '.........Education in India under the British Government was first ignored, then violently and successfully opposed, then conducted on a system now universally admitted to be erroneous, and finally placed on its present footing.........' (A.P. Howell, Education in British India Calcutta, Government Printing, 1872. p.1). It was as late as 1902 that the Government launched serious inquisitions for the improvement of Indian education and since then successive Commissions were appointed by the Government of India which put forward valuable suggestions regarding the educational policy at all levels of instruction. The latest being—New Education Policy, 1986.

Despite, however, best efforts of the Government and the public, the pace of progress in educational reforms in general and vocationalisation of education in particular, has been minimal.

Some Latent Aspects

The reason for this appears to be two fold : First, we have so far achieved little success in formulating some concrete 'weeding methods' at the 'higher secondary level' so that at the secondary level that fraction of the student population which has little interest in higher education but receives it either aimlessly or to compete in some clerical examination is at once arrested and discouraged. To quote only one example from my reminiscences as a college teacher, I once asked some of my students in the class the reasons for their offering Science. I was surprised when most of them replied that they had done so only on the insistence of their parents who were aspiring to make them doctors or engineers without their themselves having any genuine interest either in Science or in the medical or engineering profession. The others told me that they had offered Science as it was very 'customary' to offer Science these days. Some of them no doubt replied that they were really insterested in Science because of its logical approach and rationality and they had little aptitude for more straight forward and easier subjects like history, Hindi, or economics. But the number of such students was very meagre.

Dwelling upon the problem of placement and selection of students to be admitted to colleges and universities in India, the 'Report on Examination

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Deputy Secretary, University Grants Commission, New Delhi.

Reforms' (University Grants Commission) says, 'one of the most important causes of the wastage of 50 to 60 per cent in individual examinations in India is that universities admit many students who are ill-suited for higher education. It is, therefore, necessary to view the problem of admission to the Institutions objectively and think of it primarily in terms of academic and national needs and in relation to the availability of national resources. The present method of selecting students for admission does not operate to any great extent as a true selection for academic studies. Sir Francis Galton (U.K.) has emphasized differences between individuals and developed statistical methods for their analysis. Methods for precise measurements of psychological characteristics were contributed by William Wundt in Germany. Alfred Binet in France developed standardised measures directed towards identifying children of different levels of ability. On the basis of procedures used in Japan, the U.K., the U.S.A. and the U.S.S.R. the data used for college and university admissions can broadly be classified into the following types :

a. Secondary school performance,
b. Performance in entrance examination, interviews and oral examinations,
c. Performance in achievement and aptitude tests.

TABLE

Correlations between Admission Data and Final University Performance from Published Reports in UK & USA

Type of assessment	Country	University	Correlation and significance
Secondary School Assessment 1	U.K.	Degree	.14, .01
Secondary School Assessment 2	U.S.A.	4 year cumulative average	.46, .01
Aptitude tests	U.K.	Total Final Marks	.50, .01
Combined Criterion	U.S.A.	4 year cumulative Average.	.63, .01

1. *Based on Terminal Examination.*
2. *Based on Regular assessment of performance by teachers throughout the Secondary School Career.*

The data presented in the above table suggest that 'prediction of university success can be improved if the secondary school assessment (based, of course, on regular assessment of performance by teachers throughout the secondary school career) is amalgamated with aptitude tests when the correlation is as high as .63 at 1% level of significance.

Second, most of the educational institutions show stoic apathy towards dynamic reorientation and rapid vicissitudes, in accordance with the demands of the present age, in the educational curriculum and introduction of vocational streams as well as in the examination system so that the latter still remains a test of mere cramming power of students and not a test of their real ability and knowledge.

Speaking at the Central Institute of Education Dr. Julius A. Stratton of the Massachusetts Institute of Technology had some time ago said that the aim should be to intensify the educational effort and bring every home within its fold so that in all branches of national life education become the focal point of development. He did not agree at the same time that a university degree was everybody's birth right in a democratic country. Democracy offered opportunities for higher learning to all but only those with the necessary ability and initiative could avail of them.

Here, however, it is not proposed to deal with the organizational or functional details of 'modus operandi' of the 'weeding system' at the secondary level suggested above, but as 'the schools provide the base of university education and one cannot have sound university education in a country without a sound school education', it is pertinent to refer to an article to emphasize the 'importance of aptitude' for higher education the lack of which is eating up our education like 'gangrene' as reflected by the high percentage of failures in the First degree examination. The article, by an Educational Director of some attached institute of the Massachusetts University, stressed the importance of personnel with mathematical background in every department and showed the possibilities of changing the traditional mathematics curriculum at the lower stages so that students learn the more important items like calculus and graph and through it even the system of Real and complex numbers in still lower classes than they do now and in lesser period too, ignoring thereby the usual time-consuming mathematical drill. He was honest enough when he added that in countries like West Germany and Russia, which were making "tremendous advancement" in the field of science and technology, the mathematics syllabus and its teaching in particular, were different than that existing in France, U.K. and America. "Trigonometry, for example", says Marilyn Ferster in "New Mathematics in School—Science Service" has been a part of the school curriculum for 300 years. It was introduced because at that time educated men became either Sea Captains, ministers or surveyors. Knowledge of trigonometry and particularly the solution of triangle was essential for these professions. The Sea Captain used the principles involed in the solution of triangles to navigate, the minister to compute the date of Easter, and the Surveyor to stake out new land. Today the solution of triangle is no longer an important application of trigonometry. Radar and radio-beams assist in navigation, observatories compute the date of Easter, and the land has been staked out. What is important however is understanding the properties of trigonometric functions ? These properties have important applications in electrical engineering for example, and are also basic for understanding more advanced mathematics.

With logarithms too, the emphasis had shifted. Formerly they were taught as a tool for calculations. With the introduction of desk calculators this use for logarithms became obsolete. But the properties of logarithmic functions must still be taught because they are fundamental for understanding higher mathematics............Instead of Euclidean geometry in 10th grade, a combination of plane, solid and analytic geometry is presented. High School students are also introduced to vectors and they work with coordinate systems on a line, in a plane and in space.............. Dr. Patrick Suppes of Stanford University and his associates had introduced Kindergarten and first-grade children to the notion of a 'Set'. Although Dr. Suppes cannot yet evaluate the results of his experiments, he does believe that very young children can handle significantly more complex material than they are given in the conventional curriculum. Another very exciting programme is the so-called Madison Plan directed by Dr. Robert Davis of Syracuse University in which university professors teach the teachers who in turn teach mathematical concepts to their students. Fourth-grade children learn fundamental concepts of algebra through games and situations arising in the classroom rather than from standard textbook examples. Since 1946 Dr. Max Beberman of the University of Illinois has conducted his "discovery method" designed to lead elementary school children to discover basic laws of algebra by themselves. Dr. Beberman believes that conventional ways of teaching mathematics produce "rigid computers" when in fact young students could grasp abstract mathematical relationships'.

Kerala : A Case Study

Richard Aldington had said, "the true wealth of a country lies in its men and women". An educated, enlightened and disciplined population, is an asset for any country in the world. Let us make a brief case study of one of the States of India which has the highest percentage of literacy in the country, namely; Kerala. Similar studies can be made for other States of the country as well.

One-third of the State of Kerala is covered with forests. They supply timber, fuel fodder and a variety of other products. A number of industries such as furniture, paper, rayon, plywood, matches, resin and tanning depend on forests for supply of raw materials.

Next to Bihar, Kerala possesses the widest variety of economic mineral resources among the Indian States. The beach sands of Kerala contain monazite, ilmenite, rutile, zircon sillimanite etc. There are extensive white-clay deposits and abundant resources of mica, graphite, lime stone, quartz-sand lignite and other minerals of commercial importance.

About 55% of the population belongs to the agricultural class. More predominant next to agricultural occupations are cottage industries (mainly coir-spinning and handloom weaving), and cashew and coir factories.

There are perhaps more than 10.000 institutions of elementary, secondary and higher education in the State, including Junior technical and multipurpose schools. However, the number of schools offering courses in Foresty, Fisheries and other such courses to exploit forest and mineral wealth of the State, are almost negligible in the absence of concrete micro level planning for vocationalisation of education in the State. It is interesting to note, on the other hand, that for such matters as the determination of the actual number of faculty positions required in an institution abroad 2 Stage—3 Stage equilibrium Models and Markov Chain Model have been used.

It is thus apparent that vocationalisation of education should not be considered mechanically but with due regard to the concept, vision and philosophy of education.

[The views expressed in this article are author's own and not necessarily those of UGC.]

RESEARCH FOR FARMERS

Musings on 18th Anniversary of HAU

Har Swarup Singh*

In view of the recent advances made in science and technology and the means of transport and communication, agriculture cannot be treated either as an isolated sector or as a haphazard profession depending on the vagaries of nature. We, at th Haryana Agricultural University (HAU), have been making concerted efforts to make the best use of the available facilities to provide a better quality of life for the farmer.

Since the inception of the University, the agricultural production in the State has increased manifold. The University has evolved improved varieties of foodgrains, vegetable crops and cash crops. Quality plants in the aromatic plants have also been identified and are being introduced in suitable growing areas of the State to improve the economic status of the farming community. The total cropped area of the State is about 58,260 thousand hectares of which cereals account for about 55 per cent followed by pulses (19%), cotton (5.65%), oilseeds (4%) and sugarcane (2.5%). Rapeseed and mustard are the most prominent crops among oilseeds which occupied about 94 per cent of the total area allocated under oilseed crops. The cultivation of vegetable crops is mostly localised around the citites/towns. So we plan to work on commercial farming around Delhi which is sorrounded by Haryana on three sides.

The foodgrain production has gone up 2.5 times in 1985-86 compared to the production in 1966-67. The corresponding increase in pulses, oilseeds and cotton has been to the tune of 1.2, 3.4 and 1.8 times since the inception of the State. These favourable production achievements in crop commodities could be attributed to the evolution of high yielding varieties, improved production technology, increase in irrigation facilities and efficient insect-pest control, besides the coordinated efforts made for adoption of the technology by the various state agencies and the hard labour put in by the virile peasantry of the State.

Haryana Agricultural University has so far released 70 improved crop varieties for general cultivation in the State. These include popular varieties of wheat (WH-147 and WH 291 of Mexican wheat), Barley, Gram and Kabuli gram; Manak of Arhar. There has been much emphasis on oilseeds too. Noticeable work has also been done in vegetable crops.

Adoption of Dryland Technology

Successful dryland agriculture is now possible through use of conserved moisture, water-shed management and adoption of dryland technology in the rainfed areas of the State. Certain varieties, namely, Moong MH 83-21 and S9, Guar IC 9165 and HG 72, cowpea 'Chirodi', Mustard (Raya) RH 7557, RH 7818 and Kranti, Gram Gaurav and Arhar variety (Manak) showed promise for yield in the dryland tract of the State.

Seeds/Sets and Seedlings/Saplings Production

The University produces nearly 20,000 quintals of breeder and foundation seed of various crop commodities for supply to central/state seed multiplying agencies. In addition, 32,000 quintals of sugarcane sets of improved crop varieties are raised and supplied to the seven sugar mills in the State for raising foundation seeds.

More than 70 thousand fruit plant seedlings and 50 thousand sapplings of social forestry plants are produced each year.

Socio-economic Studies for Rural Uplift

The University is conducting economic survey, economics of farm crops and farming systems, for the guidance of farming community in Haryana. The Department of Sociology has conducted various social and economic studies on the problems of dietary deficiency, malnutrition in children, pregnant and lactating women, particularly of low income group.

Research for better Animal Care

Animal Husbandry, an allied activity of agriculture has received special attention of HAU scientists. Researches in animal science, especially relating to cross breeding programme in cattle, sheep and goat have provided suitable serearch results in increasing the genetic potential of local breeds. The cross breeding programme has helped to bring about three-fold increase in milk yield, reduced the age of maturing at first calving and inter calving periods. Haryana holstein cross bred yielding as high as 31 litres of milk has been devoloped by HAU scientists. The University has one of the biggest animal farms with an assortment of various animals like buffaloes, pigs, goats, sheep, turkeys, ducks, Japanese quails and poultry for meat and eggs on which continuous research has given encouraging results.

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*Vice-Chancellor, Haryana Agricultural University, Hisar.

The Veterinary Clinic provides 24 hour service for curing different animal diseases. The Clinic treats about 100 animals daily free of cost. For better health care of animals in general and of valuable cross breeds in particular, the HAU College of Veterinary Sciences, recognised as one of the best institutions of the country, has developed sound technology which has proved a boon to the veterinarians and farmers all over the country. Preventive and curative measures for some of the unidentified diseases in cattle like, degnalla, mastitis have been developed.

Educational Facilities

The University has the best facilities in terms of laboratories, equipment and teaching faculty. New Departments in the College of Agriculture such as Agro-Forestry, Agro-Meteorology have started teaching programmes at undergraduate level. In Home Science College, the Department of Home Science Extension Education has started postgraduate programme. The College of Basic Sciences and Humanities has added postgraduate programmes in Chemistry. The existing infrastructure at the campus of the College of Agriculture, Kaul has been upgraded. Plans are afoot to start some more departments such as : Department of Rural Development, Department of Environment, Department of Seed Technology, Department of Crop Physiology and Department of Post-Harvest Technology.

Recently, the University has shifted to the semester system.

Transfer of Technology

Undertaking the extension of agriculture, veterinary animal science, home science and other allied sciences to the rural people of the State, is one of the three major objectives of the University. The extension network of the University, which is most widespread and unique in the country, has been lauded at various forums throughout the country. More than 110 training courses are being organised every year for farmers, rural youth, defence personnel, rural and urban women and for the field staff of the State Department of Agriculture.

Farm magazines, folders, circulars and a large number of publications are issued regularly for the benefit of farmers throughout the State.

We endeavour to bring qualitative changes and necessary consolidation in making this University as one of the best, not only in our country but in the world. ☐

The UGC, the Academicians or the Politicians . . .

(*Continued from page 2*)

duate and postgraduate colleges. The academicians gave them Ph.D. degrees in narrow specialised areas without doing anything to improve their teaching capabilities. In fact in some cases, the UGC spent Rs. 50,000 or more to convert a good teacher into a frustrated teacher... The whole programme however helped the research programmes of many university professors, but it failed to meet the objective.

The UGC cannot maintain and coordinate standards by itself. Every member of the academic community has to be committed to maintaining these standards. If there are a few who do not want to maintain standards, the academic community should look down upon them.

Most politicians are out to exploit the educational system for their own narrow ends. They want to appoint vice-chancellors, principals, registrars and even professors who support them. They will also like to encourage teachers who are willing to organize students and teachers for supporting them. They do not mind if these teachers do not do their academic work at all.

The only defence against this can be the academic will of the academic community. The silent majority of the academic community has to defeat the designs of the vocal majority.

The educational system has to be restructured so as to introduce in it the basic element of motivation for every student and teacher. Hard and dedicated work has to be adequately rewarded, whether it is in studies, teaching or research. A public opinion has to be created which condemns in no uncertain terms, these practices which tend to lower standards. Unless action is taken now by everyone, future generations will not excuse us for our neglect. ☐

Convocation

Striving for Truth

"An average-to-good performance may result from quiet conformism. But excellence is made of different stuff. It comes from setting one's own standards for oneself, seeking to better oneself, striving for what may be called the truth of perfection and the perfection of truth'', reminded Hon'ble Shri Ramaswamy Venkataraman, the President of India while delivering the Convocation Address at the 13th annual convocation of the University of Kashmir. "Therein", he said, "lies the secret of all excellence". Excerpts

Learning is a continuous process. There can be no such thing as an end to the acquisition of knowledge. Beginning with the knowledge that is derived from books, learning then draws from actual day-to-day experience and experience is a school that has no terminal examination. Indeed, each day is at once a classroom and an examination. Therefore it is that India has long looked upon teaching as something beyond pedagogy. The ancient teaching tradition that has prevailed in India tells us that much more than the transmission of information is involved in teaching, much more than the collecting of information. To adapt the words of T.S. Eliot, information must lead to knowledge and knowledge must crystallize into wisdom.

Kashmir with its great tradition of scholarship, knows this well. Be it in Sanskrit or Persian or in its own mellifluous tongue, Kashmiri, this State has treasured the value of learning. Personalities and savants who lived here in ancient times such as the great Lal Ded, Nund Rishi and Habba Khatun were teachers in this essential sense. People came to them irrespective of denominational affiliations in search of that wisdom which helps development of one's personality, both inner and outer. These three outstanding personages helped countless persons not just to Know but to Be and not just to Be in the sense of merely Existing but in the sense of becoming progressively more and more Aware, more and more capable of perfecting one's knowledge and skills.

One's skills, acquired early in life, are thereafter placed continously on trial. Tests of one's endurance, calibre and training recur stage after stage in life. They constitute challenges which have to be met with equal earnestness, both individually and collectively.

The first challenge that I would urge my young friends to face is the personal challenge posed by Destiny to our inner resources as individual men and women, questioning what goes on around us, ever enquiring, and ever seeking. If you examine the major inventions and discoveries that have been made in human history, you will find that they were made because intellectuals questioned the obvious. Had not Newton questioned the falling of the apple, an age old occurrence. the Law of Gravitation, would not have been discovered. Had not James Wat questioned why the kettle whistled, the great invention of steam power would not have occurred. Therein lies the secret of all excellence. An average-to-good performance may result from quiet conformism. But excellence is made of different stuff. It comes from setting one's own standards for oneself, seeking to better oneself, striving for what may be called the truth of perfection and the perfection of truth. The highest fruits of research have resulted thus. Were it not for scientific research, bauxite would have remained clay and limestone, mere rubble.

University education has kindled your ability to question and to reason. It has given you the thirst for excellence ; please strive to quench it.

Plutarch in his famous *Lives* quotes Alexander as having said : "I assure you I had rather excel others in the knowledge of what is excellent, than in the extent of my power and dominion." Coming from Alexander the Great, that is a remarkable statement. But many a lesser mortal has also been guided by the desire for excellence. When we look about us, in the world of people who are far removed from eminence or power, we would be surprised by examples of sheer quality. Often unnoticed, these examples still make their own invaluable contribution.

If for instance I were asked t mention the three most outstanding categories of simple folk in India for whom the pursuit of excellence has been more than an interest and in fact, a way of life, I would say they are our artisans, our weaver and our musicians. There is n 'need' as such, functionally speaking, for the Kashmiri carver o walnut and chinar wood to go beyond making tables, chairs, boxe or the like. And yet he goes wel beyond his functional purposes t turn his products into works of sheer art. The Kashmiri wood carver's chisels have thereby created poetry on wood. Likewise, Kashmir's weavers could have remained content with rolling out lengths of fabric from any wool. But the Kashmiri weaver was not content with that. Assiduously, he spotted the smooth fleecy wood of the Kel goat and produced the *Pashmina* that has attracted the admiration of the world. The Kashmiri needle worker, likewise, could use his minute instrument to stitch and attempt nothing more. But, as we all know, he has used it, delicately and artistically, to embroider patterns of such aesthetic calibre as to be the pride of India and the wonder of the world. Here is sheer excellence in operation. And as for music, the third category of excellence that I mentioned, no examples need be cited other than that of the Kashmiri *Santoor*. I do not think there is a single instrument in India, which creates a world of subtle melody comparable to the *santoor*. Only a musician with an insatiable striving for the *maximum* aesthetic satisfaction could have thought of the *santoor*.

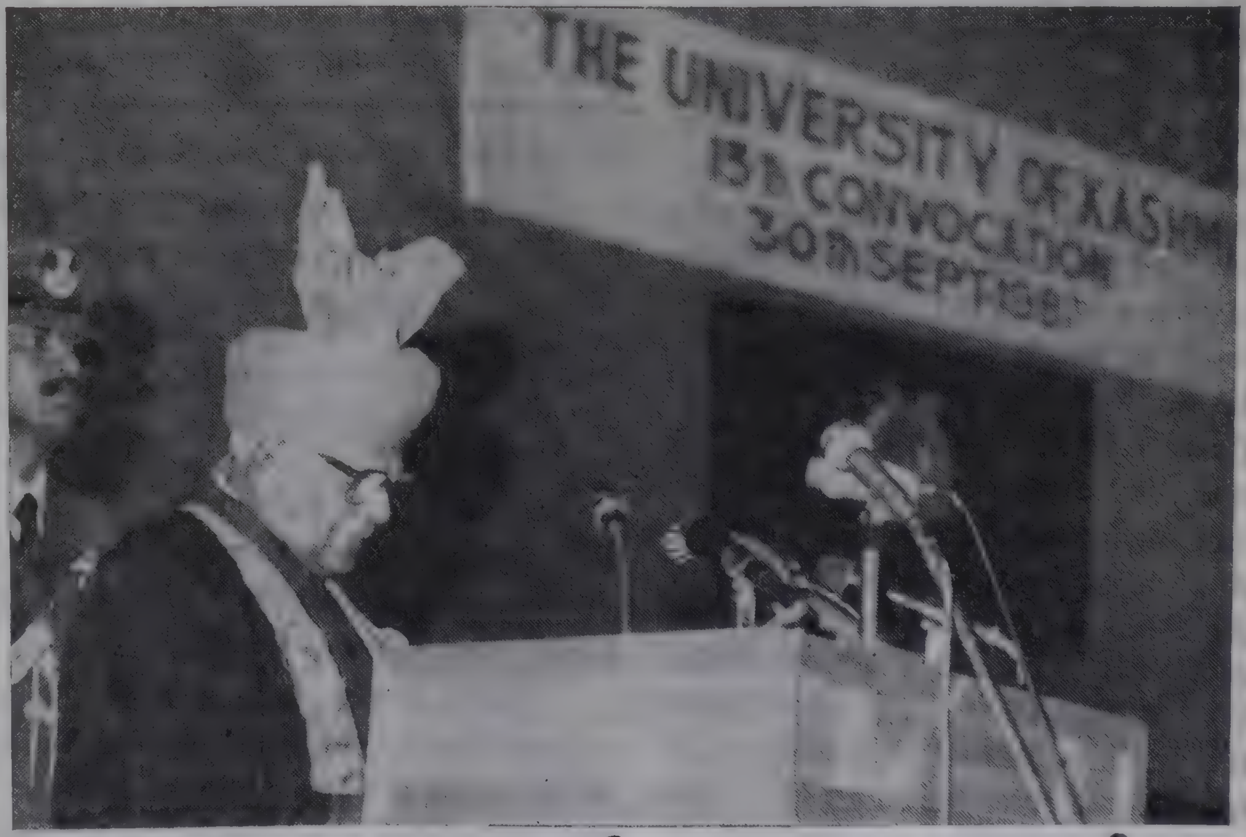
It is not the artist alone who seeks excellence. There is no vocation, be it ever so humble or prosaic, that cannot be performed excellently. The question that one needs to ask of oneself is : Am I giving of my best to the task undertaken ? As William Osler said : "The artistic sense of perfection in work is a much-to-be-desired quality to be cultivated. No matter how trifling the matter on hand, do it with a feeling that it demands the best that is in you, and when done look it over with a critical eye, not sparing a strict judgement of yourself." Any activity can be done well, or indifferently. One should always endeavour to do one's best and never reconcile to anything but one's best. It is unfortunate that more and more are growing indifferent to quality not realising that they do great harm to themselves.

A lowering of one's own standard, in terms of aspiration and endeavour, is the suicide of one's personality.

Ours is a great country with a rich heritage. Earlier civilisations in history like the Egyptian, Babylonism etc. have all disappeared from the face of the Earth, while the Indian civilisation persists inspite of all the turmoils which the country has gone through. The resilience of our culture has been so great that we have not only been able to withstand the onslaughts but even absorb the finer aspects of the waves that assailed us. The Buddhist doctrine of non-violence has become the national ethos of the country. Religions such as Islam and Christianity were not treated as hostile forces but welcomed and accommodated in early Indian History. We did not participate in the 'Crusades' or fight religious wars in our country. Resistance to invasion is not the same thing as wars between religions. It is precisely because of this distinct character of our nation that the Indian civilisation has survived and a distinct Indian culture evolved through the ages.

The diversity of our nation is an asset and has been an ally to independent thought. India has not imposed any pre-conceived, pre-determined models on thought. In the arts, the humanities and sciences, there is an infinite scope for new experiments; but these experiments in India can and must be founded on ethical and moral principles and on universally recognised truths of life. Each group in India, be it linguistic or religious or any other, is free to foster its own cultural forms and arts: but, it must at the same time try to learn from other cultures about the basic foundations of our *national* heritage.

The State of Jammu and Kashmir has, in this context, set a salutary example. Its three distinct areas : Jammu in which Dogri is spoken and where Hinduism flourishes; the valley of Kashmir in which Kashmiri is spoken and where Islam



Shri R. Venkataraman delivering the convocation address thrives; and Ladakh where Ladakhi is spoken and Buddhism is the religion, are a model of harmonious plurality. We have here a perfect example of what unity in diversity means. This State is a model for all others to see and emulate. The State of Jammu and Kashmir encourages nationalism and shows how community life can be meaningful, full of sweetness and light. When our social institutions grow in such an invigorating environment, processes like education can acquire vitality and find moorings consistent with the societal environment. In such a society we can look forward to the emergence of enlightened and enterprising individuals and of a vibrant and dynamic society that is seeking excellence through a national endeavour.

Let us, for a moment, cast a glance at some of the great gains of this national endeavour. We have transformed the backward and benighted agricultural India that it was prior to independence into a modern industrialised nation in the world. Thanks to the vision and foresight of Jawaharlal Nehru, heavy industries like steel, coal, aluminium and copper were started on a massive scale through the successive Five Year Plans. The manufacture of engineering goods, fertilisers, chemicals and pharmaceuticals and consumer durables followed as a corollary to the establishment of basic industries and the development of infrastructure. Thus, our industrial economy has strikingly diversified with manufacturing capabilities extending over a wide range of products, giving us the adaptability required for designs, structurals and machine tools. We can now state with confidence that India's industrial economy has reached the take-off stage.

India is equal to Europe excluding Russia in size. This part of Europe is artificially striving to achieve economic viability through the concept of the European Economic Community. Our resources are, of course, as unevenly distributed as in Europe. Our deposits of coal, iron ore, manganese, copper and bauxite, for instance, are concentrated in a small sector of Bihar, West Bengal, Madhya Pradesh and Orissa. Gypsum, lead and zinc occur only in Rajasthan. But our steel plants, cement factories and other industrial establishments using these resources dot the entire nation. This has been rendered possible because of the free movement of goods and commodities from Kashmir to Kanyakumari. In short we are an economic community and we are able to share and utilise the wealth of one part of the country in every other part. We have our pluses and minuses but these balance out at the national level. Mutuality compensates disparities.

In the early years of our Republic, States' representatives used to urge on the Centre to correct the regional imbalance and promote balanced regional development. The objective of planning in India is not only to utilise the resources to maximum advantage but to bring about balanced regional development so that the devil does not take the hindmost. It should be said to the credit of the planning process in India that a lot has been achieved in this direction though in view of size, population and utter backwardness of certain regions a lot more remains to be done. States which are backward have therefore much to gain from the centralised planning than the comparatively developed states in the country.

One of the principal objects of a University is to make better citizens out of common people. Virtues like tolerance, discipline, and law-abidance cannot be developed overnight but must be cultivated from a very early age in the schools and colleges. Indeed the history of civilisation is nothing more than the history of human endeavour to tame the primeval instincts of man and make him live in peace and harmony with his fellow men. If University education teaches one PATRIOTISM to sacrifice everything for the freedom and honour of the motherland; HUMANISM to regard every person, irrespective of religion, caste or creed as a brother; DISCIPLINE to perform one's duty to one's own satisfaction, it would have rendered yeoman service to its alumni.

ASSOCIATION OF INDIAN UNIVERSITIES

CORRESPONDENCE COURSE IN EVALUATION METHODOLOGY & EXAMINATIONS

Applications are invited from college/university teachers for admission to Correspondence Course in Evaluation Methodology and Examinations at Basic Level, Intermediate Level and Advanced Level/ Special Professional Course. The duration of each of the three courses is six months. A personal 'Contact Programme' for three days is planned for each of the three courses. Universities/Institutions sponsoring candidates can meet the registration/course fees from out of unassigned grants by UGC.

Request for prospectus and application form accompanied by a crossed Indian Postal Order for Rs. 10/- drawn in favour of the Secretary, Association of Indian Universities and a self-addressed stamped envelope (Rs. 2/-) should be sent to the Project Director (Exams.), Association of Indian Universities, 16 Kotla Marg, New Delhi 110002. Last date for receipt of application is **15th March** for non-sponsored and **16th March, 1988** for sponsored candidates.

Study English & Keep Abreast

Professor Yashpal, Chairman, University Grants Commission, (UGC) urged the students, especially those studying science and technology, to acquire proficiency in English in order to have an access to the wide knowledge which was fast growing outside the country. If this was not done, it would be a great disadvantage to students and also a setback to the work of standardizing books in Indian languages. He was delivering a valedictory address to the three-day seminar on "Need and availability of text books for higher education sector in India" jointly organised by the National Book Trust, UGC, Indian Council of Agricultural Research and Medical Council of India, as part of the 8th World Book Fair. He said that books on life sciences, agriculture and humanity subjects should, however, be written in Indian languages with Indian experiences.

Professor Yashpal was also critical of the existing examination system which, he felt, thwarted growth of knowledge among students. Tying up learning to the examination system by providing them knowledge "in a package" was a proscriptive measure which was not conducive to encouragement of original thinking. Students should be encouraged to acquire knowledge from whichever source it was possible and to benefit from it.

He also suggested forming a nucleus for writers to ensure adequate facilities and incentives for writing textbooks of high standard for the university students.

He called upon the universities to open cooperative book stores to ensure the supply at concessional prices reading material to the students.

Professor Rais Ahmed, former Vice-Chairman, UGC, said that the centre for production of knowledge would continue to be outside the country for a long time to come. We should therefore not cut off ourselves from these sources of knowledge by ignoring the study of English. Even countries like the Soviet Union, China and Japan were promoting the study of English to acquire knowledge from where it was possible.

He said that the huge stocks of unsold books in English and regional languages indicated bad planning and management resulting in waste of national resources. He said that only right kind of persons should be commissioned to write books in regional languages so that they could stand comparison with those written in English.

JNU Extension Lectures

The Jawaharlal Nehru University has organised a series of 30 talks for public on various major issues in comtemporary international relations at its City Centre beginning February 15, 1988.

These talks are organised every year and cover developments in almost all the areas of the world and all aspects of international relations—economic, political, social. The lectures focus attention on crucial issues and trouble spots and their implications for India and the mankind.

Organised by JNU's School of International Studies since 1967, the main purpose of these lectures has been to promote knowledge of international politics and India's role in the world affairs among those who have had no special opportunity of studying these problems. The specific topics change from year to year according to the changing situations in world affairs. The inaugural lecture delivered by Prof. M.S. Rajan on "India and the Super Powers" will be followed by lectures on topics which include the United Nations at the Crossroads, Disarmament and Development, the Significance of INF, Global Commons : Peace and Development, Nonalignment : India's Chairmanship, the new phase in Super Power relations after the Gorbachev-Reagan Summit and the Global System, Washington Summit and the Soviet-American Relations, Conflicts in West Asia, Japan's Defence Policy since 1976, Crisis in Southern Africa, Emerging Trends in Indo-US Relations, Indo-Sri Lankan Accord : Issues and Prospects, the Third World and the Gandhian Alternative, North-East Asia Today and the World and China : Some Recent Perspectives.

Senior faculty members who are expert in their respective fields would deliver these lectures.

Madras Varsity to Offer New Courses

The Madras University will soon introduce a number of "diversified" courses such as B.Sc. in Rural Development, Rehabilitation Science and Computer Applications. This was announced by Dr. A. Gnanam, Vice-Chancellor of the university recently. He said there were right now 10 traditional courses of study, which could be increased to 40. Highly diversified, technology and utility-based courses such as B.Sc. in Rural Development and Computer Applications could be introduced. He said, "I want to give opportunities to students to move horizontally. A student of English Literature should be able to take up Computer Science", he pointed out.

The Madras University would also increase the total intake in the courses by 15 to 20 per cent. The increase in the intake need not necessarily be in traditional courses like B.Sc. (Botany). It would be done through diversified courses.

Dr. Gnanam said he was also thinking in terms of greater mobility for students to go from one University to another. He, however, ruled out any increase in the number of colleges coming under the Madras University.

Dr. B. Ramamurthi, Syndicate member, endorsed Dr. Gnanam's views and said that inter-disciplinary changes should be made possible for the students. Diversified courses should be introduced. Medical technology course at the B.Sc. level was one of the most wanted courses. He pointed out that computer applications were finding increasing relevance in medical courses.

Deptt. of National Security & Strategic Sciences

The Jammu University is considering a proposal to open a Department of National Security and Strategic Sciences. To begin with, it is planned to start an undergraduate course, which will be followed by postgraduate and other courses of advanced studies in the field of defence sciences. However, the setting up of the department at the Jammu University is subject to the approval of the Government due to strategic location of the State.

Science & Technology Communication Course

Calcutta University, in consultation with the Department of Science and Technology (DST) proposes to introduce a course on Science and Technology Communication.

The DST has also decided to set up a national centre for studies on "severe storms" at the Calcutta University in collaboration with the Indian Meteorological Department. The centre will also make recommendations on the control measures to be taken in the coastal areas ravaged almost every year by cyclonic storms, apart from other studies on the subject.

Training Teachers for Special Education

A three-day national conference of deans and heads of department of education, on development of special educational units for disabled children, held in New Delhi recently has recommended that the University Grants Commission (UGC) may sponsor a special training course in collaboration with NCERT, for teachers in different areas of disability.

This is a step towards meeting the objective of the national policy on education which is to "integrate the physically and mentally handicapped with the general community as equal partners". The conference also recommended that the UGC or State Governments should provide at least one person for this programme since the UGC scheme had not included administrative staff for this programme.

Sri Padmavathi Varsity Plans New Courses

The Bar Council of India is reported to have permitted Sri Padmavathi Women's University to start bachelor's degree in law, of both five-year integrated and three-year degree course. The University also proposes to start from the next academic year a degree course in Pharmacy and Master's degree courses in Education and Communication Journalism. Other postgraduate courses planned are in Microbiology and Home Sciences.

According to Mr. B. Rangaiah Registrar, the University had urged the University Grants Commission (UGC) to sanction Rs. 1.5 crore to start a bachelor degree course in pharmacy and Rs. 25 lakhs for research work on women's development. He said that the university had also requested the UGC to release Rs. 1 crore for development of sports and gymnastics besides a stadium on the university campus.

National Associateship in Biotechnology

Bio-Technology National Associateships are available to Indian Nationals for conducting advanced research or undergoing specialised training in Indian research institutes/laboratories in the priority areas of biotechnology viz (i) Basic Molecular Biology, (ii) Microbial Genetics, (iii) IDNA technology, (iv) Immunology and Immunodiagnostics, (v) Animal Tissue Culture, Hybridomas and cell-culture based vaccines, (vi) Plant tissue-culture and viruses, (vii) Embryo transfer Technology, (viii) Peptide and Nucleic Acid Chemistry (Synthesis), (ix) Modern techniques in Industrial Microbiology and energy conversion, (x) Biochemical engineering, process optimisation and computer modelling, (xi) Bio-Informatics, (xii) Emerging areas.

The applicants should possess a Ph.D/M.D. degree or their equivalent in areas related to bio-technology, with outstanding contribution in areas of their specialization. They should hold regular position in research institutes and be actively engaged in biotechnological R & D work. Applications from persons working on temporary positions as research fellows or associates, etc. will not be considered.

The duration of the Associateship is 3 months to 1 year in India. Candidates who avail the associateship for a period of 6 months or more in India may also be granted an opportunity to work in a foreign laboratory for three months.

Candidates should submit their applications typed on plain paper (5 copies) in the format to be provided by the Principal Scientific Officer (MB), Department of Biotechnology, Block 2, 7th Floor, CGO Complex, Lodi Road, New Delhi-110003. The selected candidates will have to commence work under the award before March 31, 1988.

Dr. Appadurai named National Professor

The Union Government has appointed Dr. A. Appadurai, the renowned Professor of Political Science, as national research professor for a period of five years. Dr. Appadurai was the Founder Director of the Indian School of International Studies, which later merged into the Jawaharlal Nehru University and renamed as the School of International Studies. There are three national professors at present under the scheme of national research professorship instituted in 1949. These are Dr. V.K.R.V. Rao, Justice D. D. Basu and Dr. D. R. Rao.

News from Abroad

Commonwealth VCs Meet

University of Western Australia at Perth was the proud host to the Conference of Executive Heads of University Institutions of the Commonwealth on 4-5 February, 1988 and the 14th Quinquennial Commonwealth Universities Congress from 7 to 12th February, 1988. It was after twenty years that the Commonwealth Universities Congress met in Australia, the earlier being held at Sydney in 1968. It was a bappy coincidence that the University of Western Australia hosted the Congress in the 75th year of the Association of Commonwealth Universities as it itself was celebrating its 75th year of existence. While the Congress was declared open by His Excellency the Right Honourable Sir Ninian Stephen, Governor General of the Commonwealth of Australia, the Keynote Address was delivered by Mr. Justice Gordon Samuels of the New South Wales Supreme Court and the Chancellor of the University of New South Wales. Mr. Justice Samuels described Australian Government's plans to acquire enhanced powers to direct the universities and to abolish the Tertiary Education Commission as an act of unsound judgement that was likely to upset the academic equilibrium. He felt that it was not proper for the Government to become involved in the direct allocation of funds to universities as buffer bodies like the Tertiary Education Commission diminished tensions. He was, however, none too happy at the universities' reaction to demands for greater accountability, which he felt, was rather negative.

Over 700 delegates from all over the Commonwealth including about 70 Vice-Chancellors from India attended the Congress.

The general theme chosen for the 14th Congress was 'The Contribution of Universities to National Development'. This was discussed in seven topic groups each devoted to the themes : (1) The University as a Critic, (2) The University as a Knowledge Factory, (3) Universities and Continuing Education, (4) Universities and National Administration, (5) Universities and Culture, (6) Universities and the Social Impact of Technology, and (7) Universities and Rural Change.

Each of the sessions was marked by presentation of papers followed by lively discussions. Professor P.N. Srivastava, Member. Planning Commission and former Vice-Chancellor, Jawaharlal Nehru University, in his paper on 'Continuing Education with Special Reference to Science and Technology' observed that advances in Biotechnology, Information and Communication Technology will be the major contributors to economic growth in the next two decades. This will require substantial qualitative change in education, training and constant new skill formation at all levels. Continuing Education, therefore, will have to receive increased importance in our fast changing world, he added.

Prof. Bb. Krishnamurthy, Vice-Chancellor, University of Hyderabad in his paper on 'Roles of Regional Languages Vs English as Medium of Instruction in Higher Education in India', threw up a number of suggestions to demarcate the complementary roles of English and Indian languages in higher education to produce optimal results in terms of learning theories, cross-cultural models and national goals. 'Cultural Dimensions of the making of Modern

India' was the theme of the presentation made by Prof. N.S. Bose, Vice-Chancellor, Visva-Bharati. India, like many other Commonwealth countries, had inherited from the British some of their institutions and certain aspects of political life and belief, he said. The most important agency of modernisation was English education. A comparative study of the situations in India and Africa, or India and Third World countries will undermine the tremendous importance of historical traditions and bring out essential differences in the context of the great Indian leaders and thinkers, he added. Professor Devendra Kumar, Vice-Chancellor, Gandhigram Rural Institute in his presentation on 'The Challenge of Rural Development', referred to the growing urbanisation and its socio-economic concomitants and called for creation of small face to face communities to establish primary relations and to preserve environment and ecology. Universities could offer to meet rural challenges in developing small and better communities and economically purposeful and socially useful courses of teaching and generating new knowledge supplemented by prioritised list of rural problems for research and organising effective extension.

'Potential for Further International Cooperation of Universities in Research' was the subject of the paper presented by Dr. L.S. Srinath, Director, Indian Institute of Technology, Madras. While listing problems that beset international university cooperation in research and citing reasons for need of cooperation, Dr. Srinath called upon the Commonwealth universities to provide the motivating forces for effective cooperation. He felt student exchange programmes could provide an effective mechanism. Dr. B.B. Sundarsen, Vice-Chancellor, University of Madras made his presentation on the 'Role of Universities in Assessing the Impact of Technology upon Environment'. He said that models of development in industrialised countries when applied to low income and less industrialised countries have resulted in ecological disorder. University system should respond to environmental preservation and attune science and technology for enhancing the quality of life in its totality. Curriculum modification at all levels in science and technology streams, emphasising social relevance, cultural appropriateness, ecological impact and environmental awareness is required to sensitise individual groups and society, he added.

Mrs. Kamalini Bhansali, Vice-Chancellor, SNDT Women's University, presented a paper on 'Recent Developments in newly Industrialising and Developing Countries' in the Group on Universities and Continuing Education. Prof. Moonis Raza, Vice-Chancellor, University of Delhi, was one of the panelists in the Group on Universities and Rural Development. His presentation covered Design of landuse Management.

The programme was interspersed with social events that included visits to Murdoch University and the Curtin University of Technology.

The Congress ended with the presentation of reports by the Chairmen of various topic groups at the plenary session.

News from Agril. Varsities

High Yielding Varieties

The Kerala Agricultural University (KAU) has developed seven advanced high yielding cultures of rice, two hybrids of coconut, two cultures of pepper and one culture of cardamom suitable for cultivation in Kerala. These cultures are identified as advanced cultures for release for cultivation in the state.

The two rice cultures developed at the Rice Research Station, Moncompu, namely, Culture 93 and Culture 170, are capable of yielding over five tonnes per hectare. These short duration varieties can be harvested within 100-115 days. Culture 153-1 also developed at Moncompu is resistant to brown plant hopper, the major rice pest in Kuttanadu region. Among the 4 high yielding rice cultures developed at RARS Pattambi, the Culture numbers 745 and 796 are cold resistant and suitable for growing in the highranges of Idukki and Wyand districts during the second crop season.

The two coconut hybrids AO x GB and WCT x GB developed by KAU consistently showed excellent performance as compared to all hybrids involving GB other than LO x GB.

Two advanced pepper Cultures C-239 and C-331 developed at the Pepper Research Station, Panniyur has out yielded the widely cultivated pepper hybrid variety, Panniyur-1.

The PV-1 (Pampadumpara—Valayar Culture) Cardamom developed at the Pampadumpara Cardamom Research Station with elongate capsule each containing 21-24 seeds has already become popular in the cardamom tracts of the Idukky district.

CALENDAR OF EVENTS

Proposed Dates of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
March 10-12 1988	Nationalism : Problems and Challenge	To discuss different aspects of the development of nationalities during 19-20th centuries and their relationship with Indian nationalism.	Centre for Social Studies, South Gujarat University, Surat in collaboration with K.M. Munshi Centenary Committee, Gandhinagar.	Prof. Ghanshyam Shah, Centre for Social Studies, South Gujarat University, Surat-395007
May 9-June 4, 1988	Summer Course in Analysis and Probability	Topics to be covered are Probability Theory and Stochastic Processes, Fourier Analysis & Functional Analysis.	Indian Statistical Institute, Bangalore Centre.	T.S.S.R.K. Rao, In-charge, Summer School 1988, Stat-Math. Division, Indian Statistical Institute, R.V. College (P.O.) Bangalore 560 059
May 18-20, 1988	Conference on Recent Advances in Mathematical Techniques and Applications	Topics proposed to be discussed include Mathematical Physics, Mathematical Methods, Biofluid Dynamics, Chaos, Stability and Turbulence.	Dr. Y.S. Parmar Institute of Mathematical Sciences, Shimla.	Dr. J.R. Gupta, Organising Secretary, Dr. Y.S. Parmar Institute of Mathematical Sciences, Hainault, Shimla-171002
June 27-July 8, 1988	Short-term Intensive Training Programme on Abstracting & Indexing	To train the participants in the application of abstracting and Indexing methods and construction of an indexing language (Thesaurus).	National Institute of Small Industry Extension Training, Hyderabad.	Mrs. K. Subhashini, Course Director, NISIET, Yousufguda, Hyderabad-500045
July, 12-14 1988	**International Symposium on Recent Advances in Male Reproduction**	**The Symposium will focus on Molecular Biology of Inhibin, Androgen Binding, Protein Regulation of Fertility, Peptides in Testis Function and Steroidogenesis in Testis.**	**University of Hyderabad in collaboration with the Indian Society of Andrology.**	**Prof. P.R.K. Reddy, School of Life Sciences, University of Hyderabad, Hyderabad 500134**
September 26-28 1988	**International Conference on Welding Technology in Developing Countries**	**To provide an opportunity to scientists and technologists from developing and advanced countries to share their experiences in the area of Welding Technology.**	**University of Roorkee, Roorkee.**	**Prof. P.C. Gupta, Organising Secretary, International Conference on Welding Technology in Developing Countries, Department of Mech. & Ind. Engg., University of Roorkee, Roorkee-247667**
October 27-29, 1988	National Seminar on Statistics in Medicine, Health and Nutrition.	To discuss Data-Base and Analysis in Health and Nutrition—Present and Future.	Department of Statistics National Institute of Nutrition, Hyderabad.	Dr. K. Visweswara Rao, Organising Secretary, National Seminar on Statistics in Medicine, Health and Nutrition, Department of Statistics, National Institute of Nutrition, Indian Council of Medical Research, Jamai Osmania, Hyderabad-500 007

School of Planning and Architecture

(Deemed to be A University)

4 Block-B, Indraprastha Estate, New Delhi-110002

ADMISSIONS TO Ph. D. PROGRAMMES 1988-89

Applications are invited from persons of high academic attainment, who wish to study and research in the fields of Architecture, Urban Design, Architectural Conservation, Landscape Architecture, Urban and Regional Planning, Housing, Transport Planning, and Building Engineering and Management. Extensive Library and reference facilities are available in the School.

ELIGIBILITY FOR ADMISSION

The applicants for admission to the Ph.D. Programmes shall possess the following qualifications :

Master's Degree in Urban and Regional Planning/Housing/Transport Planning/Landscape Architecture/Urban Design/Architectural Conservation/Building Engineering and Management of the School or its equivalent from any other recognised University/Institution with a minimum of 60% aggregate marks.

OR

(i) Bachelor's Degree in Architecture of the School or its equivalent from any other recognised University/Institution with a minimum of 60% aggregate marks and five years' experience in teaching/research/profession (applicable only for Ph.D. in the field of Architecture); and

(ii) A Valid GATE Score

The Committee for Doctoral Programmes may, however, admit a teacher having the prescribed qualification with 55 per cent aggregate marks and has atleast 5 years' teaching experience in the relevant discipline.

SCHOLARSHIP

All scholars with a Master's Degree in the respective disciplines are eligible for scholarship of Rs. 1200/- per month.

Scholars with Bachelor's Degree in Architecture without GATE Score may be considered for the award of a scholarship after they qualify in the next GATE examination w.e.f. the date of the examination.

INFORMATION AND APPLICATION FORM

Details regarding Ph.D. Programmes minimum admission qualifications and other requirements are given in the Information Brochure and Ph.D. Programmes.

Candidates called for Viva-Voce will be paid travelling allowance for the journey from the Railway Station nearest to the residence/place of work and back by II Class Railway fare along the shortest route.

Indian residents abroad may apply directly with Bio-Data on plain paper. Foreign nationals are required to apply through diplomatic channels.

IMPORTANT DATES

1. Issue of application forms commences on : **01-03-1988**
2. Last date for issue of application forms against payment of Rs. 30/- in cash/demand draft in favour of the 'School of Planning and Architecture, New Delhi'
   (i) At School Counter : **25-03-1988**
   (ii) By Post : **23-03-1988**
3. Last Date for Receipt of Application Forms : **30-03-1988**

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month' while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research scholars and students of education are welcome to use these resources. The Library is open from 9-00 a.m. to 5-30 p.m. Monday through Friday. Access can also be had through Inter library loan for which requisition must be made through your Librarian.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

SOCIAL SCIENCES

Sociology

1. Joshi, Jagdish. *Nagarikaran evam bal apradh : Indore Nagar ke bal apradhiyon ke adhyayan per adharit.* Devi Ahilya. Dr. V.C. Tongia.

2. Khalida Lil. *A sociological study of legal medical termination of pregnancy in Indore District.* Devi Ahilya. Dr. V.C. Tongia.

Social Anthropology

1. Pradeep Kumar, K. *Impact of television sponsored programmes on school children.* HS Gour. Dr. Ramesh Choubey and Dr. H.N. Sharma.

Political Science

1. Asok Kumar, A.V. *Kerala administration origin and development.* Kerala. Dr. K. Sadasivan Nair.

2. Das, Sanjay. *Economic development, tribal identity and demand for a state in Jharkhand.* HP. Dr. Javeed Alam.

3. Latha, R. *Participation of women in Kerala politics.* Kerala. Dr T. Varghese.

4. Oommachan, K. *Educational reforms in Kerala : A case study of the educational reports introduced by the first Communist Government.* Kerala. Dr. T. Varghese.

5. Rajan, T. *Liberation theology movement and Kerala.* Kerala. Dr. A. Abdul Hadi.

6. Sandhu, Davinder Pal. *Sikhs in Indian politics : A study of a minority.* HP. Dr. Gopal Singh.

7. Sud, Onkar Chand. *Administrative problems of rural development : A comparative analysis on the basis of Kangra and Shimla Districts.* HP Dr. R.D. Sharma.

8. Unnithan, Janardanan. *Quantitative increase on trade unions with the reference to service section in Kerala.* Kerala. Dr. K. Sadasivan Nair.

Economics

1. Abdul Salim, A. *The costs and returns of education : The Kerala experience.* Kerala. Dr. P.R. Gopinathan Nair.

2. Asokan, V. *External financing in the economic development of India* Kerala. Dr S. Uma Devi.

3. Bandyopadhyay, Subrata. *Economics of Solar energy in India.* Devi Ahilya. Dr. V.D. Nagar.

4. Bhardwaj, Anil. *Dimensions of poverty and inequality in rural Himachal Pradesh : An inter district compirasion.* HP. Dr. N.K. Sharda.

5. Desai, S.J. *A study of working and progress of cooperative land development banking with special reference to Kolhapur District.* Shivaji. Dr. J.F. Patil.

6. Jacob John. *Economics of alternative sources of rural water supply with special reference to Kerala.* Kerala. Dr. G. Karunakaran Pillai.

7. Madhusoodanan Nair, P.K. *Tourism industry and economic development of Kerala.* Kerala. Dr. G. Karunakaran Pillai.

8. Nagar, Indu *M.P. ke Malwa kshetra mein bhoomi heen shramik.* Devi Ahilya. Dr. (Smt.) S. Mahalati.

9. Nair, Rema. *Investment in higher education of woman : A case study in Kerala.* Kerala. Dr. P.R. Gopinathan Nair.

10. Puntambekar, Rohini. *Yojanakal mein Madhya Pradesh mein gair vikasiya vyaya.* Devi Ahilya. Dr. (Smt.) Nirupama Nagar.

11. Sasikumar, S.K. *Investment and financing in the private corporate sector in India.* Kerala. Dr. P.R. Gopinathan Nair.

12. Sunny, K.A. *Economic utilization of irrigation water : A case study of periyar Valley Project.* Kerala. Dr. G. Karunakaran Pillai.

13. Suvarathan, P.I. *Theory and practice of export oriented growth with reference to India.* HP. Dr. L R. Sharma.

14. Upadhye-Chavan, Vijaykumar Devendra. *A socio-economic survey of immigrant labour in brick-making industry in the Sangli District.* Shivaji. Dr. J.F. Patil.

15. Vijay Kumar. *Economics of production and marketing of stone fruits in Himachal Pradesh.* HP. Dr. B.K. Sikka.

16. Vijayakumar, S. *The unorganised sector of the labour market in Kerala : A case study.* Kerala. Dr. K. Ramachandran Nair.

Education

1. Pachpinde, U.A. *A study of training in planning ability and execution ability upon the teaching skill performance of student teachers.* Shivaji. Dr. A.N. Joshi.

2. Sreekumar, S.K. *Factors influencing alcoholism and drug-addiction among college students in Kerala.* Kerala. Dr. Mercy Abraham.

Commerce

1. Deshmukh, Somraj V. *Recruitment, selection, training and development of personnel in manufacturing and service sectors with special reference to Kolhapur City.* Shivaji. Dr. D.H. Hindocha.

Home Science

1. Sindhu, Neena. *Managerial problems of employed home makers.* Kerala. Dr. L. Prema and Dr. P.K.B. Nayar.

HUMANITIES

Languages & Literature

Sanskrit

1. Anjan Bala. *Harshvardhan kee kritiyon ka natya shastriya adhyayan.* HP. Dr. Virendra Kumar Mishra.

2. Baldev Raj. *Shradh prakriya : Sutra sahitya ke sandarbh mein.* HP. Dr. Virendra Kumar Mishra.

3. Bhuvneshwari, Devi. *Balmiki Ramayan mein alankar yojana. HP. Dr. Maan Singh.*

4. Girija, R. *Pramana paddhatih : A critical edition an study.* Kerala. Dr. T. Bhaskaran.

5. Kalia, Suksham Bala. *Pandit Durgadutt Shastri : Vyaktiya evam krititva.* H.P. Dr. Maan Singh.

6. Maheshwari, Poonam Lata. *Roop Goswami ke natya siddhant.* HP. Dr. Maan Singh.

7. Musalgaonkar, Chandrakant. *Maharshi Yagyavaklya aur unka Bhartiya chintan ko yogdan.* Devi Ahilya. Dr. L.N. Shukla.

8. Pandeya, Kaushal Kishore. *Swami Vivekanand vishyak sanskrit sahitya ka sameekshatmak adhyayan.* Devi Ahilya. Dr. L.N. Shukla.

9. Pant, Deepa *Natyashastriya parampara mein Shing Bhupal ka yogdan : Rasaensudhakar ke sandarbh mein.* HP. Dr. Virendra Kumar Mishra.

10. Rahi, Om Prakash. *Upanishadon ke kriyaroop : Ek bhashik adhyayan.* HP. Dr. Baldeo Singh.

11. Sharma, Daya Nand. *Kav Sanhita mein yagyatattva : Shatpath ke priprekshya mein.* HP. Dr. Virendra Kumar Mishra.

12. Sharma, Netraj. *Parmar shaskon ke sanrakshan mein Malwa kee Sanskrit sahitya ke den.* Devi Ahilya. Dr. S.R. Dantre.

13. Sharma, Sarswati Prasad. *Saraswat Uyakaran ka sameekshatmak adhyayan.* HP. Dr. Nardeo Shastri.

14. Shastry, Mahima. *Sanskrit sahitya mein Tirath : Ek sanskritik vivechan.* Devi Ahilya. Dr. S.R. Dantre.

15. Shukla, L N. Jyotishi. *Shri Bodhanand virchit Kabir Beejak ke Vigyan Beejak prakashika namak Sanskrit teeka kee sameeksha evam tulnatmak anusheelan. D. Litt.* Devi Ahilya.

16. Verma, Kaushalaya. *Ashwaghosh ke kriya roopon ka bhashik adhyayan.* HP. Dr. Baldeo Singh.

Hindi

1. Desai, J.M. *Nari vishyak drishtikon : Vividh ayam, adhunik Hindi kavya ke pariprekshyá mein.* Shivaji. Dr. P.R. Pathak.

2. Giri, Bhagyashri Prashant. *Swatantrayottar Hindi kahanion mein nari samasyaen : Ek adhyayan.* Shivaji. Dr. B.B. Patil.

3. Kamat, S.Y. *Swatantrayottar Hindi aur Marathi natakon mein nari samasya : Ek tulnatmak adhyayan.* Shivaji. Dr. B.B. Patil.

4. Kulkarni, B.R. *Babu Bal Mukund Gupta aur S.M. Paranjpe ka tulnatmak adhyayan.* Shivaji. Dr. P.P. Pathak.

History

1. Mathur, Lalita. *Internal administration under Lord Hastings, 1813-1823.* Devi Ahilya. Dr. C.K. Tiwari.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Library Science

1. Chandran, Ranjita. *Development of a computer based integrated information system : A case study with information requirement of users for international tendering with specific reference to Indian Machine Tools.* Karnatak. Dr. C.R. Karisiddappa.

2. Misra, V.N. *Planning and design of university leve library buildings.* Karnatak. Prof. K.S. Deshpande.

Psychology

1. Chandrakar, Gopal. *Field dependence and sensatio*

eking abilities of the handicapped children. Ravishankar. r. O.P. Verma.

2. Mahadik, Arun Kumar. *Frustration value system and ype of words as determinants of retention.* Ravishankar. Dr. .N. Upadhyay.

Sociology

1. Bajpai, Girja Shankar. *Patterns of criminal victimization in Sagar City.* HS Gour. Dr. H.S. Maheshwari and Prof K.S. Shukla.

2. Banerji, Bhasha. *Educational crisis in a university town.* Durgavati. Dr P. Chandra.

3. Machavaram Vidyasagar. *Media consumption and flow of information in the modernization process of rural areas in Andhra Pradesh.* Jamia. Prof. AR. Saiyed.

4. Mathur, S.B. *Political attitudes of slum dwellers : Study as the extent of Jaipur City.* Rajasthan. Dr. Iqbal Narain.

5. Pandey, H.C. *Sindhi samaj ke parivartan pratiman : Jairagarh, Bhopal per adharit.* Bhopal. Dr. I.S. Chauhan.

6. Saxena, Rekha. *Women offenders : A study in socio-cultural and economic dynamics.* Jamia. Prof A.R. Saiyed and Prof. K.S. Shukla.

7. Tiwari, Jyotsana. *Indore Jile mein gat teen dashakon mein shikshit mahilaon kee samajik sthiti mein parivartan.* Devi Ahilya. Dr. V.C. Tongya.

8. Ushasri Reddy, G. *Working pattern of primary agricultural cooperative societies : A study of Mahabubnagar District of Andhra Pradesh.* Osmania.

Social Anthropology

1. Murahari Naik, D. *Agrarian unrest in Karnatak with special reference to farmers' agitation in Shimoga District.* Karnatak. Dr. K.G. Gurumurthy.

Political Science

1. Kanjilal, Tanmay. *Issues and forces determining Indo-U.S. relations, 1966-1971.* Calcutta.

2. Mukhopadhyay, Subhankar. *Religion and politics in Bengal : Continuity and change.* Burdwan. Prof. Anil Baran Roy.

3. Salah Al-Din-Ismail-N-Al-Shekly. *International rivalry over the Red Sea and its implications for the Arab politics.* Rajasthan. Prof. H.G. Pant.

4. Singh, N. Ibohal. *Judicial system in Manipur prior to 1891 A.D.* Manipur. Dr. N. Ibobi Singh.

5. Vadapalli Sumati. *Modernisation of the Nizam's administration : Socio political linkages in the ninteenth century.* Hyderabad. Prof. R.V.R. Chandrashekhara Rao.

6. Varshney, Pradeep K. *Arms build up in the Persian Gulf countries, 1968-78 with special reference to Iran, Iraq and Saudi Arabia.* Rajasthan. Prof. H.C. Pant.

Economics

1. Bhatia, Sitesh Bala. *Agricultural price policy and production in India, 1956-70.* Jamia. Prof. M. Rahmet Ali and Prof Nasim Ansari.

2. Chopra, Ram Murti. *Impact of social services on economic initiative.* Jamia. Prof. M. Rahmet Ali and Prof. Husain Yasin Siddiqui.

3. Davinder Kumar. *An economic analysis of fluctuations in sugar industry with particular reference to Panjab.* PAU.

4. Gupta, Rajendra. *Inflation in India, 1970-80.* Jammu. Dr. P.C. Jain.

5. Gurpreet Singh. *An economic analysis of investment pattern on Panjab Farms.* PAU.

6. Muthusamy, V. *The economics of forest development in Tamil Nadu.* Madurai.

7. Pandey, Ramadhar Prasad. *Bilaspur Jile ka kamjor varg ke arthik vikas mein kshetriya grameen bank ke yogdan ka mulyankan.* Ghasidas. Dr. S.C. Shrivastava.

8. Rajinder Singh. *An economic analysis of labour use in Panjab agriculture.* PAU.

9. Singh, L. Brajamandol. *Population growth and occupational pattern in a developmental process of the economy of scheduled tribes in Manipur, 1951-1981.* Manipur. Dr. L. Tombi Singh.

10. Surender Kumar. *Marketable surplus, income, savings and economic rationale of investment pattern in tribal agriculture : A study of tribal farmers of Kinnaur District of Himachal Pradesh.* HP Krishi. Dr. T.V. Moorti.

Law

1. Ganai, Nisar Ahmed. *Familial rights of Muslim women in the state of Jammu and Kashmir with special reference to appointment of a female heir and inheritance.* Jammu. Dr. D.N. Saraf.

Education

1. Agarwal, Kanta Prasad. *Types of schools and corresponding factors as predictors of creativity at secondary level.* Jamia. Dr. Bager Mehdi.

2. Chikhalikar, Yashwant Krishnarao. *Vaidik vangmay ka Sanskrit sahitya yanteel shikshan vishayak chintan paripathee va anushashan yancha chikitsak abhyas tatha adhunik vichar pranaleeshee tulana.* Nagpur. Dr. N.R. Parasnis.

3. Mohapatra, Premlata. *Comparative role of intelligence, attitude and interest towards success in teaching.* Utkal.

4. Santosh Kumar. *Relationship of intellecutal development with creativity, achievement and socio-economic status of XI grade science students.* Jamia. Dr. Mohd. Miyan.

5. Subba Rao, Koramati Pedda. *Political participation of students of Andhra University campus with reference to communication of views and issues.* Andhra.

Business Management

1. Gupta, Rakesh. *Modelling and analysis of inventory systems under inflation and stock dependent consumption.* IIT Delhi. Prof. Prem Vrat.

2. Menon, G. Gopinatha. *Processing procurement and marketing of paper with particular reference to co-operative sector.* CUST. Prof. N. Ranganathan.

JAWAHARLAL NEHRU UNIVERSITY

NEW DELHI

ANNOUNCEMENT FOR ADMISSION 1988-89

The University will hold Entrance Examination for admission to various programmes of study in the following 24 Centres on May 19, 20 and 21, 1988 :

Ahmedabad, Bangalore, Baroda, Bhubaneswar, Bombay, Calcutta, Chandigarh, Cochin, Dehradun, Delhi, Gauhati, Hyderabad, Indore, Jaipur, Lucknow, Madras, Madurai, Patna, Pune, Ranchi, Shillong, Srinagar, Varanasi and Vaiyawada.

Schools and Programmes of Study

1. School of International Studies :

(i) **M.Phil/Ph.D.** in International Politics, Organisation, Disarmament & Political Geography; Diplomatic Studies, International Legal Studies, International Trade and Development; South Asian, Central Asian, Southeast Asian & Southwest Pacific Studies; Chinese, Japanese and Korean Studies; West Asian, North African and Sub Saharan African Studies; American, Latin American & West European Studies and Soviet & East European Studies.

(i) **M.A.** in Politics (International Studies)

II. School of Languages:

(i) **M. Phil/Ph.D.** in French, German, Russian, Hindi, Linguistics & English, Spanish and Urdu and **Ph.D.** in Japanese, Persian and Modern Western Philosophy.

(ii) **M.A.** in English, Linguistics, Hindi, Urdu, Persian, Chinese, Japanese, French, German, Russian and Spanish.

(iii) **B.A. (Honours)** in Persian, Chinese Japanese, French, German, Russian and Spanish (with entry points both in 1st and 2nd year) and Modern Arabic (with entry point in 1st year only). Students successfully completing the 3-year B.A. (Hons) become eligible to seek registration to M.A. in respective language as at (ii) above.

III. School of Social Sciences

(i) **M.Phil/Ph D.** Programme is offered by following Centres which have their curricular and research work organised on interdisciplinary basis with a focus on some major problems of study. Centres: Economic Studies and Planning, Historical Studies, Political, Studies, Regional Development, Social Systems, Educational Studies (Psychology, Sociology, Economics and History of Education) and Social Medicine & Community Health.

(ii) **Master of Community Health (MCH/Ph.D.)**: Candidates holding MBBS with one year's experience after internship or Master's degree in Nursing with one year's experience in Community Health in Nursing.

(iii) **M.A.** in Economics, Geography, History, Political Science & Sociology.

IV. School of Life Sciences :

(i) **M.Phil/Ph.D.** in areas of interdisciplinary research: Genetic Engineering, Molecular Biology and Genetics, Biochemistry, Plant and Animal Tissue Culture, Developmental Biology, Cell Biology, Immunobiology, Neurobiology, Microbiology, Radiation and Cancer Biology, Biophysics, Photobiology Bioenergetics etc.

(ii) **M.Sc.** in Life Sciences: open to candidates from both Biological and Physical Sciences.

V. School of Environmental Sciences :

(i) **M. Phil/Ph.D.** in areas of interdisciplinary research: Physics, Chemistry, Geology, Biological Sciences and allied Sciences related to Environmental problems.

(ii) **M.Sc.** in Environmental Sciences with options for specialization in Atmospheric, Earth, Pollution Biological Sciences.

VI. School of Computer & Systems Sciences :

(i) **M.Tech., M.Phil/Ph.D.**: The School offers academic programmes leading to the degrees in diverse aspects of Computer & Systems Sciences.

(ii) **Master of Computer Applications**: (MCA) 3-year programme.

VII. School of Physical Sciences :

Ph.D. in Physical Sciences: Research and teaching in border line areas of Physics & Chemistry, the emphasis for the present being on topics of Chemical Physics, Condensed Matter Physics, Non-equilibrium Statistical Mechanics, Stochastic Processes & Nonlinear Dynamics.

VIII. Centre for Biotechnology :

Ph.D. Research areas: Cholera Genetics and Vaccines, Photosynthesis; Eukaryotic Gene Expression and Synthetic Oligonucleotides in diagnostics and protein engineering.

Reservation of Seats :

22½% (15% for SC and 7½% for ST) and 3% of seats are reserved for SC/ST and Physically Handicapped candidates. SC/ST and Physically Handicapped candidates passing the qualifying examination are eligible to apply irrespective of their percentage of marks.

How to Apply

Application form together with detailed Instructions including eligibility conditions can be had either personally on cash payment of Rs. 5/- per set or by post by sending crossed Indian Postal Order for Rs. 16.00 payable to JAWAHARLAL NEHRU UNIVERSITY, NEW DELHI for one set of forms and postage along with a self-addressed envelope of 28 cms x 20 cms size to

The Deputy Registrar (Admissions), Jawaharlal Nehru University, New Delhi-110067.

There being different forms for different levels of programmes, candidate should clearly indicate in the request as well as on the top of the self-addressed envelope the name of the programme for which the form is required. A maximum of three subject choices of the same level of programme could be given in a single set of forms.

Issue of Forms :

From February 10, 1988 to April 4, 1988
Last Date for Receiving Completed Forms : April 11, 1988

Note :

1. Candidates who are due to appear in the respective qualifying examination prescribed for eligibility for admission to a particular programme are also eligible to sit in the entrance examination as per conditions laid down in this regard. However in the event of selection, their admission shall be subject to their securing the prescribed percentage of marks in the qualifying examination and submission of all documents including final marksheet of the qualifying examination.
2. Announcement for admissions to Direct Ph.D. and Part-Time programmes will be notified separately in May, 1988.

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Rohilkhand University Bareilly (U.P.)

DEPARTMENT OF BUSINESS ADMINISTRATION

ADMISSION NOTICE

MASTER OF BUSINESS ADMINISTRATION (M.B.A.)
TWO-YEAR (FOUR SEMESTER) FULL-TIME PROGRAMME

(Commencing from July 1988)

Applications are invited, on prescribed form, for admission to SECOND BATCH of Master of Business Administration Programme for the academic year 1988-89 commencing from July 1988.

Intake

The maximum number of students to be admitted is 30.

Eligibility

A bachelor degree of equivalent, in any field of knowledge from a recognised university or institute, shall constitute the minimum educational qualification for admission to the M.B.A. Course.

Selection Criteria

The students for admission will be selected purely on merit through an admission test, partly written (objective type—Aptitude Test) and partly oral (Group Discussion and Personality Interview). The written test will include English Comprehension, Numerical Ability, General Intelligence and General Awareness. Those candidates who qualify in the written test will be exposed to second phase of test, i.e. group discussion and personality interview.

Centres for Test

The written test will be conducted simultaneously at two centres, viz., Bareilly and Kanpur.

Date of Written Test

The written test will be held on Sunday, 15th May 1988.

Special Features of the Programme

The programme is highly innovative and placement oriented, dovetailed with most modern inputs an enables specialisation in the areas like Financial Management, Marketing Management, Personnel Managemen Production/Operations Management, Public Systems Management including Rural Development.

Top quality Faculty (full time and part time) drawn from top level institutions/organisations in India are in position.

Applications

The application form and information about the programme can be obtained on payment of Rs. 30/ from the cash counter of the university on any working day or by registered post on payment of Rs. 30/- through crossed bank draft payable at Bareilly, drawn in favour of the Finance Officer, Rohilkhand University Bareilly alongwith a self addressed envelope of size 11'' x 8'' affixed with postal stamps of Rs. 7.50. Th application forms by registered post would be sent upto 9th April 1988. The requests, for application for by post, should be made to the Professor and Head, Department of Business Administration, Rohilkhan University, Bareilly-243001.

The envelope containing request for application form or the completed application form should b marked "Admission to MBA 1988".

Application form complete in all respects, accompanied by required certified copies of credentials an admission test fee Rs. 100/- through a crossed Bank Draft payable at Bareilly, and drawn, in favour of Th Finance Officer, Rohilkhand University, Bareilly, should reach the Professor and Head, Department o Business Administration, Rohilkhand University, Bareilly-243001, not later than 20th April 1988.

B.S. Gupt
REGISTRA

इन्दिरा गांधी राष्ट्रीय मुक्त विश्वविद्यालय
INDIRA GANDHI NATIONAL OPEN UNIVERSITY

Applications are invited from Indian Citizens for filling up the following posts in the Indira Gandhi National Open University :

(1) Professor/Editor

Scale of Pay : Rs. 4500-150-5700-200-7300 plus usual allowances as admissible under the University Rules.

Qualifications : An eminent scholar, with published work of high quality, actively engaged in research.

First class Master's degree in English and Ph.D. in Linguistics. About 15 years experience of teaching, research and administration. Experience in editing academic publications or University level text books. Desirable : Eminent scholars with published research work and administrative experience preferred.

(2) Lecturer/Assistant Editor

Scale of Pay : Rs. 2200-75-2800-100-4000 plus usual allowances as admissible under the University Rules.

Qualifications : First class or a high second class Master's degree in English and a degree/diploma in Linguistics or experience in Journalism.

OR

Master's degree in Linguistics with proven competence in English as evidenced by publications.

Desirable : Familiarity with editing of academic publications.

Eligibility

Only those candidates who, besides fulfilling the minimum academic qualifications in the above, have qualified in a comprehensive test to be conducted by the University for the purpose will be eligible for consideration for appointment as Lecturer/Assistant Editor.

The details of the comprehensive test as well as place at which such test would be conducted would be intimated to the candidates at least a month in advance.

Additional Qualifications :

Experience and proven ability in imparting education through communication media and innovations in distance teaching methods and materials.

Job Requirements

Academic staff of this University will have the following responsibilities :

1. Curriculum and Course Development;
2. Preparation of self-instructional print material;
3. Preparation of and participation in the production of audio/video materials;
4. Participation in contact programmes, workshops, weekend programmes, summer institutes, face-to-face teaching etc.
5. Undertaking of research-individual, institutional, sponsored etc.

In addition to pay, the post carries all allowances as per University rules. Higher start in the prescribed scale may be given in deserving cases on the recommenation of the Selection Committee. Provident Fund/Pension, Gratuity, Leave Travel Concession, Medical reimbursement and leave will be admissible as may be approved by the University.

The prescribed application forms can be had from the **Registrar, Indira Gandhi National Open University, YMCA Cultural Centre, 1-Jai Singh Road, New Delhi 110001** on a written request by post and accompanied by a self-addressed envelope (size 13 cms x 28 cms) bearing postage stamps of Re. 100. Completed application forms alongwith attested copies of degrees, other certificates, marksheets, published research articles, experience etc. should reach the Registrar at the above address on or before **14.3.1988**.

The originals of the above degrees/certificates should be produced at the time of interview.

15% and 7½% of the total number of vacancies of Lecturer/Assistant Editor are reserved for Scheduled Castes/Scheduled Tribe candidates respectively. If no suitable candidate is found from SC/ST categories, the posts will be treated as un-reserved and selection will be made from general candidates.

Candidates called for interview from outside Delhi will be paid single second class railway fare to and fro by the shortest route from their place of residence/work.

Canvassing in any form by or on behalf of a candidate will be a disqualification.

Applications received after the last date or without complete information will not be entertained.

Note : It will be open to the University to consider the names of suitable candidates who may not have applied. Relaxation of any of the qualifications may be made in exceptional cases in respect of all the posts on the recommendation of the Selection Committee.

2. The University reserves the right not to fill up any of the vacancies advertised if the circumstances so warrant.

REGISTRAR

Avt. No. 6/ADMN./87-88

Government of India, Ministry of Human Resource Development

DEPARTMENT OF EDUCATION

Commonwealth Scholarship/Fellowship Plan-New Zealand/Australia/Cyprus Awards 1988-89.

Application on plain paper as per prescribed format are invited from Indian nationals for Commonwealth Scholarship nominations for post-graduate studies/research in New Zealand/Australia/Cyprus.

NEW ZEALAND

Subject Fields and Minimum Qualifications Required : (a) Soil Science: A first Class Master's Degree in the subject field. (b) Dairy Technology : A first Class Master's Degree in the subject or Allied Fields (c) Geo-Thermal Technology : A first Class Master's Degree in Geology or Geophysics.

AUSTRALIA

Subject Fields and Minimum Qualifications : (a) Solar Energy (b) Agricultural Engg. : A first Class Master's Degree in the subject or Allied fields.

Essential Experience : At least two years (a) teaching/research or practical experience or (b) higher studies/advanced work on 31st December, 1987 after acquiring the qualifications prescribed above.

Age : Below 35 years on 1st August, 1988 (Preference will however, be given to candidates between 22 and 28). Two years relaxation may be given in case of candidates belonging to Scheduled Castes/Scheduled Tribes, other things being equal.

CYPRUS

Subject Field : Postgraduate Diploma in Business Management tenable from September, 1988.

Minimum Qualifications Required : A first Class Master's Degree in Business Administration.

Essential Experience : At least ten years experience on 31.12.87 as working executives after acquiring the prescribed qualification.

Age : Below forty years on 1st August, 1988. Two years relaxation may be given in case of candidates belonging to Scheduled Castes/Scheduled Tribes, other things being equal.

Value : Travel to and from New Zealand/Australia/Cyprus by air passage as arranged by the authorities of the respective country. (No provision has been included for the expenses of dependents except in the case of Australia) (b) Expenditure on board and lodging, books and other study material, tuition fee, internal travel related to studies and medical care will be met by the Respective Government.

N.B. : (i) Only candidates with 60% marks and above at the prescribed qualification are eligible. Where grades are mentioned, the candidate must indicate the conversion formula adopted by the University/Institution. (2) Equivalent foreign degree will be considered. (3) Each application must be accompanied by attested copies of (a) Certificate of age (b) marks sheet of the qualifying examination and (c) all degree/diploma/certificate. (4) Candidates who have already been abroad for study/training specialisation on a scholarship are eligible to apply only if they have been in India for atleast three consecutive years after their return from abroad. (5) Applications in subject-field other than those specified above will not be considered. (6) Applications should be accompanied by a Crossed Postal Order of Rs. 5.00 (Rs. 1.25 only in the case of SC/ST and other Backward Class candidate, who must attach a certificate to the effect that they belong to one of these classes) payable to the Secretary, Ministry of Human Resource Development (Deptt. of Education), New Delhi. Applications which do not contain Postal Orders will not be considered. (7) Applications of candidates who are abroad will not be considered. (8) Only Postal Orders issued after the date on which the advertisement was published in newspapers will be accepted. (9) Candidates who do not possess the requisite qualifications need not apply. (10) Applications received after the prescribed date and incomplete application will not be entertained. (11) Candidates should have adequate knowledge of Geographical situation, Culture & heritage of India and donor Government.

Last Date : The candidates should apply for the above scholarship on a plain paper with a passport size recent photograph, furnishing the details/particulars in the given format to **the Assistant Educational Adviser, Deptt. of Education, External Scholarships Division, Section E.S. 4, Room No. 517 'B', Shastri Bhavan, New Delhi 110 001 by 15th March 1988.**

The applications received late will not be entertained.

PROFORMA FOR APPLICATION

1. Name of the Scholarships Scheme :
2. (a) Subject (b) Sub-subject :
3. Name of the candidate (in Block Letters), with full mailing address
4. Date of birth and the State to which the candidate belongs :
5. Whether a member of SC/ST or a tribal or aboriginal community.
6. Academic record starting from High School/Higher Secondary : (Attested/Photostat Copies of Certificate to be attached.)

A recent
Passport Size
Photograph

Name of the University/ Board/ Institution	Examinations passed	Year of passing	Division/ class with position if any*	Percentage of marks obtained & position if any.	Subjects taken

* (in case no Division/Class is awarded & only grading is done, the conversion formula adopted may be mentioned)

7. Details of Professional, Practical Training & Research Experience, specifying the period and number of papers published, previous employment with name and date of employment, if any.

8. Nature of the present employment with date of appointment, designation and the name and address of the employers.

9. Have you been abroad? If so, give full particulars of the country and the period. Also, mention the date & year of return to India.

10. Proposed programme of study/research/training specifying,

    (i) the work at present engaged in; (ii) nature and programme of study/research/training desired; (iii) future plans prospects after the proposed studies/research/training; and (iv) how are these related to the technical or economic development of India.

11. Crossed Postal Order of Rs. 5.00 (Rs. 1.25 paise in case of SC/ST candidates etc.) payable to the Secretary, Ministry of Human Resource Development (Deptt. of Education) may be attached with the form with passport size photograph (one copy).

Note : Employed persons must send their applications fully sponsored by the employers. However, advance applications will be considered provisionally pending sponsorship by employers. (ii) Candidate should specifically indicate country for which his application is to be considered.

Place : Signature

Date : davp 87/606

Ministry of Human Resource Development (Department of Education)

Czechoslovak Government Scholarships for 1988-89

Applications are invited on plain paper as per format below from Indian nationals residing in India for the award of 5 (five) scholarships offered by the Government of Czechoslovakia for Post-graduate studies leading to 'Candidate of Sciences' (Ph.D.) Degree.

Applications are invited on plain paper as per format below, from Indian nationals residing in India for the award of 5 (five) scholarships offered by the Government of Czechoslovakia for Post-graduate studies leading to 'Candidate of Sciences' (Ph.D.) Degree.

Subject Fields (i) Nuclear Physics (ii) Nuclear Chemistry (iii) Environmental Protection and Formation (iv) Silicate Technology (v) Wood Technology (vi) Communications and Safety Systems in Transport (vii) Czeck or Slovak Language and Literature (viii) Physical Education and Sports (Rehabilitation).

Value : Adequate Maintenance allowance Board at Students Canteens at prices paid by Czechoslovak Students : Accommodation in Students' Hostels of respective Universities; Free Medical Care.

Duration : Upto 3 years.

Age : 33 years as on 1-10-1988 (Relaxation in age upto two years will be given in the case of Scheduled Castes/Scheduled Tribes candidates). Upper age limit and experience may be relaxed by not more than three months at the discretion of the Selection Committee in the case of brilliant candidates.

Qualifications : Uniformally good academic record, with atleast 60% marks at Master's degree level in Science/Engineering/Technology relating to the field of study or equivalent qualification in the subject selected or in an allied field.

Essential Experience : At least two consecutive years' teaching/research/practical experience as on 1-10-1988 in the subject field selected, after the prescribed qualifications successful completion of M. Phil will be counted towards experience.

Passage Cost : Travel expenses from India to Czechoslovakia and back will be borne by the candidate or his/her sponsors/employers. Subject to availability of funds, the passage cost may be met by the Government of India, provided the candidate is eligible under the rules.

Note : (1) The following documents must be attached with the application (a) Attested copy of the certificate certifying the date of birth (b) Candidates belonging to SC/ST must attach a copy of certificate to this effect (c) Attested copies of marks sheets of the qualifying examination (d) Attested copies of all degrees/diplomas/ certificates etc. (e) A clear and precise programme of study/research proposed to be undertaken in donor country (f) A recent passport size photograph of candidate to be affixed on the prescribed application form (g) A crossed Indian Postal Order of Rs. 5/- (and Rs. 1.25 p. in case of SC/ST and other backward classes) issued after the date of publicatioh of this advertisement and payable to the Secretary, Ministry of Human Resource Development, Department of Education, New Delhi (2) Application in the subject-field other than those specified above will not be considered (3) Candidates who have already been abroad for study/specialisation/training either on a scholarship or on their own are eligible to apply only if they have been in India for at least three consecutive years after their return from abroad (4) Applications of candidates who are at present abroad, will not be considered (5) Candidates should have sufficiently good knowledge of India and the Donor country. (6) Applications which do not contain Postal Orders and other required documents will be treated incomplete and will not be considered (7) No correspondence will be entertained with candidates not selected for interview/fellowship (8) Canvassing in any form will be a disqualification (9) Candidates must send their applications fully sponsored by their employers. Advance applications duly completed in all respects may also be considered provided the application through employer is received within a fortnight from the last date prescribed for the receipt at completed applications pending sponsorship by employers (IPO) is to be sent with the advance copy) and (10) Applications received after the prescribed date will not be entertained.

Candidates should apply for the above fellowships on plain paper (preferably typed) furnishing the following details/particulars to **the Deputy Educational Adviser, Ministry of Human Resource Development, Department of Education, External Scholarship Division, Section ES I, Room No. 516, 'B' Wing, Shastri Bhavan, New Delhi-110001 latest by 15-3-88**. Applications received thereafter will not be entertained for consideration.

——————APPLICATION FORM——————

1. Scheme under which applied:
   Subject : Sub-subject:
2. Name in full as in Passport Dr/Shri/Shrimati/Kumari (in Capital letters)
   (Surname) First name and second names.
3. Name of father:
4. Name of the sponsoring authority and/or name of the authority which will employ you on return from abroad.

Passport size photograph duly signed in ink to be pasted here (without photograph application will be considered incomplete).

5. (a) Date of Birth: (b) Place of Birth:
6. (a) Are you a citizen of India (b) State to which you belong :
6. (c) Are you a member of Schedule Caste, Scheduled Tribe or other Backward Class ? If so, give particulars and attach certificate from the District Magistrate of your place of residence in support of your claim.:

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7. Address of the applicant with Pin Code Number: (i) Present/Mailing: (ii) Permanent:
8. Particulars concerning Examinations passed commencing with Matriculation or equivalent examination (attach attested photocopy of each certificate/diploma/degree for record).

University/ Board/ Institution	Examination passed with year	Class/ Divn.	Percentage of Marks & Position if any.	Subjects taken

9. (a) Details of papers published, if any:
   (b) Research work done/practical training received.

Name of firm	Date of joining	Date of leaving	Monthly Honorarium/stipend/ Fellowship or Apprenticeship allowance if any	Nature of training

10. (a) Particulars of employment :

Office/Institution where employed	Date of joining	Date of leaving	Post held	Monthly salary	Nature of duties

   (b) Indicate what you have been doing since last examination mentioned in item 7.
   (c) Have you any contract obligation with your employers? If so, furnish details.

11. (a) Knowledge of foreign languages, if any (Attach proof if possible).

Skill		Very Good	Good	Fair	Nill
Comprehension :	Spoken				
	Written				
Expression :	Speaking				
	Writing				

12. Nature of proposed programme of study/research :

(a) Field of study: Main subject:...........Sub-subject:...........

(b) Scholarship/Fellowship desired for: Training/Specialisation: Yes/No; Doctoral Studies: Yes/No; Post-doctoral studies ; Yes/No :

(c) Name of the Institution (If known) where admission/training is desired (in order of preference).

(d) Are you willing to accept a place at some other institution if the appropriate scholarship agency recommends it?

(e) Have you already approached any University or University Professor in the country in which you intend to study ? If so, give names and results :

(f) Degree sought, if any :

(g) Give, separately in extra sheets, brief statement in about 100 words each about:

(a) The work engaged in (b) Nature, programme of study/research desired:

13. Future prospects after studies/research.
(a) Plan for the future (b) How are these related to the technical or economic development of the country ?

14. (a) Have you applied for any other scholarship in the last two years? If so, state the name(s) of the scholarship(s) and the subject of study/research proposed therein. Are you willing to be considered under any similar scholarship scheme involving study in another country? If so, which?

(b) If you had applied under this scheme previously, Please indicate the result.

15. Give below the names of two persons (they must not be related to you) who are in a position to testify from their personal knowledge as to your fitness for the proposed course of study. They must be persons under whom you have worked or studied.

(i) Name with full address: (ii) Name with full address :

16. Have you ever been abroad? If so, give the following particulars :

Country visited	Date of visit	Duration of visit	Purpose of visit	Scholarship received, if any

17. Father's name (in full) :
(a) Nationality.........(b) Occupation.........
(c) Address.........

18. In case you are married, please state:
(a) The name of your Husband with full address:
(b) Nationality————(c) Occupation————
(*) For married female candidates only.

19. Next of kin to be notified in the case of emergency (give name, address and relationship) :

20. Crossed Postal Order of Rs. 5/- (Rs. 1.25 in case of SC/ST and other backward classes) issued after the date of publication of this advertisement and payable to the Secretary, Ministry of Human Resource Development (Department of Education), New Delhi must be attached with the application form. Kindly give details of Postal Orders attached.

Sl. No.	Postal Order No.	Date of Issue of Postal Order	Name of the Post Office Issuing the Postal Orders	Value of the Postal Order Rs. Ps.

21. I hereby declare that the entries in this form and the additional particulars (if any) furnished in reply to the questions above are true to the best of my knowledge and belief.

Place : (Signature of the Candidate)
Date :

22. (a) Certified that Shri/Smt./Km............is employed by us/me and he has been sponsored by us/me for study abroad.
(b) He/She will be relieved by me/us, if selected.
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davp 87/605

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The Publication Division of the Institute for Social Sciences and Research has published a few books written by experienced professionals with topical interest and academic value in the field of social sciences. These books will be of immense value to the teachers, researchers and those who are in Social Action. Hence they should find a place in all the equipped libraries in India to promote Social Development. There is a blend of conceptual and practical experiences of professionals.

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R(IA)308-5/88 **REGISTRAR**

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Address the application to the Director, Institute of Economic Growth, University Enclave, Delhi-110007.

Ministry of Human Resource Development
Department of Education

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Applications are invited on plain paper from Indian Nationals residing in India for the award of two scholarships offered by the Government of Greek for a period of ten months for the academic year 1988-89 in the following subject-fields :

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Value : Monthly allowance : 40,000 Drachmas (Approximately U.S. Dollars 310/-) for University students and 45,000 Drachmas (Approx. 350/- US$) for Postgraduate students.

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Passage Cost : The cost of passage from India to Greek and back will have to be borne by the selected candidate or his/her employer/sponsor. Subject to availability of funds, the passage cost may be met by the Government of India provided the candidate is eligible under the rules.

Note : (i) Candidates with equivalent foreign qualifications will be considered. (ii) The candidates may give their exact percentage of marks at all levels. Grade points will not be considered. (iii) Only candidates with 60% marks and above at the level of minimum qualifications as prescribed above, are eligible. (iv) Applications of candidates, who are abroad will not be considered. (v) The candidate should have adequate knowledge of geographical situation, culture & heritage of India and Greece. (vi) Employed person must send his/her application through his/her employer with "NO OBJECTION CERTIFICATE" in time failing which, application shall not be considered. (vii) Candidates who have already been abroad for study/research training on a scholarship are eligible to apply if they have been in India for at least three consecutive years after return from abroad. (viii) Applications which do not contain postal order will be considered incomplete and will not be considered (ix) Application in the subject-field other than those specified above will not be considered. (x) Candidates who do not possess the requisite qualifications need not apply. Applications with incomplete documents will not be considered. (xi) Candidates holding Ph.D. degree are not eligible to apply. (xii) Candidates should apply for the above scholarship on a plain paper, furnishing the following details :

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FORMAT OF APPLICATION

A recent
Passport
size
photograph

1. Name of the Scholarship Scheme
2. (a) Subject (b) Sub-subject
3. Name of the candidate (in Block Letters) with full mailing address.
4. Date of birth and the State to which the candidate belongs.
5. Whether a member of SC/ST or a tribal or original community if so, give full particulars.
6. Academic record starting from High School/Higher Secondary.

Name of the Board/ University/ Institution/	Exam(s) Passed	Year of Passing	Division/ Class with position, if any*	Percentage of marks obtained & position, if any.	Subjects taken

* (in case no Division/class is awarded and only grading is done, the conversion formula adopted may be mentioned).

7. Details of Professional Practical Training and Research Experience specifying the period and number of papers published previous employment with the name and date of employment, if any.
8. Nature of the present employment with date of appointment, designation and the name and address of the employers.
9. Have you been abroad, if so, give full particulars of the country and the period. Also mention the year of return to India.
10. Proposed programme of study/research/training, specifying : (i) the work at present engaged in; (ii) future plans prospects after the proposed studies/research; (iii) nature and programme of study/research desired; (iv) how are these related to the technical or economic development of India.
11. Number and date of Crossed postal order of Rupees five (Rupee one and paise twenty five only in case of SC/ST candidates etc.) attached with the form.

Note : Employed persons must send their applications fully-sponsored by their employers. However, advance applications complete in all respects will be considered provisionally pending sponsorship by employers. Applications must be sent to **the Assistant Educational Adviser, Ministry of Human Resource Development, Department of Education, External Scholarships Division, E.S. 5 Section, Room No. 517, 'B' Wing, Shastri Bhavan, New Delhi-110 001 by 10th March 1988.**

Place : Date (Signature of Candidate)

davp 87/621

TATA INSTITUTE OF SOCIAL SCIENCES

DEONAR, BOMBAY 400 088

No. Admn/40 88

Dated : February 19, 1988

Applications are invited for the posts of two temporary Programme Officers (equivalent to Lecturer) to be stationed at the Rural Campus of the Institute in Tulzapur Taluka, Osmanabad District, Maharashtra. The candidates should have a post-graduate Degree in Social Work Rural Development, having at least 55% of the marks, and field experience, especially in innovative work in the field. The candidates should know Marathi or Hindi. Pay scale Rs. 700-40-1100-EB-1600 (unrevised). The prescribed application form, alongwith the details of qualifications, experience, etc., prescribed for the posts, should be obtained from the above address, either in person or by post. If requested by post, enclose a stamped (Rs. 2.00) self-addressed envelope supercribed "Request for application form for "Programme Officer". The last date for the receipt of the completed application is 15 3 1988.

S.R. Pansare
DEPUTY REGISTRAR

TAMIL UNIVERSITY

THANJAVUR

Dated : 19-2-1988

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Dr. P. Chinnian
REGISTRAR

HARYANA AGRICULTURAL UNIVERSITY

HISAR

Corrigendum to Advertisemrnt No. 1/88

With reference to our Advertisement No. 1/88 published in these columns on **15.2.1988**, some amendments may be read as under :

Sr. No. 4 : Professor of Animal Breeding : Undr sub-serial No. (iv) of the qualifications, out of ten years experience of teaching/research/extension in Animal Breeding/Animal Genetics, 5 years should be as Associate Professor or equivalent.

Sr. No. 8 : Research Scientist (Anaesthesia) : It is a Reserved post for Scheduled Caste.

Sr. No. 47 : D.P.E. : It may be read as School Lecturer (Physical Education).

Sr. No. 55 : P.T.I. : It may be read as School Teacher (Physical Education).

Note No. 7 : Those who have applied in May, 1987 for the posts at Sr. No. 5, Professor (Physical Education); Sr. No. 49, School Lecturer (Art & Painting Sr. No. 50, School Teacher (Geograp need not apply again.

Last date for receipt of applica for post at Sr. No. 4 is extended u **16.3.88.**

Other conditions remain unchange

REGISTR

INDIAN INSTITUTE OF TECHNOLOGY

MADRAS

CORRIGENDUM

This refers to Advt. No. IITM/R/1 published on **15.2.88.**

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University News

ONDAY, MARCH 7, 1988 Rs. 1.50

D 52

Universities of Tomorrow

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National Apex Body

●

Old Wives Tale

●

IQ Controversy

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UGC Funds for Labs & Libraries

School of Correspondence Courses

ANDHRA UNIVERSITY-VISAKHAPATNAM-530003

ADMISSION INTO B.A. AND B.COM. COURSES SUPPLEMENTARY BATCH 1987—'88.

The School of Correspondence Courses is inviting applications from the candidates residing in India for admission into B.A. and B.Com. degree courses for the academic year 1987-88 as **Supplementary Batch**.

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The prescribed application forms, and Prospectus are also available at our following study centres on payment of Rs. 10/- through demand draft: 1. Government College, Srikakulam; 2. M. R. College, Vizianagaram; 3. Mrs. A. V. N. College, Visakhapatnam; 4. Government College, Rajahmundry, 5. P. R. Government College, Kakinada; 6. Sir C. R. Reddy College, Eluru; 7. S. R. R. & C. V. R. Government College, Vijayawada; and 8. A. C. College, Guntur.

The School has no agents and takes no responsibility for the prospectus issued and the promises made for admission by any other institution.

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SPECIAL NOTE FOR THE SUCCESSFUL CANDIDATES IN B.A./B.COM. ENTRANCE EXAMINATION OF JANUARY, 1988 :

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Waltair,
Dt. 22-2-88.

Prof. V. Abraham
DIRECTOR

UNIVERSITY NEWS

VOL. XXVI MARCH 7, 1988
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A Weekly Chronicle of Higher Education published by the Association of Indian Universities

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Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association.

Editor :
SUTINDER SINGH

UNIVERSITIES OF TOMORROW

B. Sheik Ali*

The future stands upon the past. I have a theory that demolishes the popular concept of time into past, present and future. There are no three tenses but only two, the past and the future. The present is only a fleeting moment poised between the past and the future, and it is gone even while it is being mentioned or thought about. A citizen's sovereignty lasts only a few seconds until the vote is cast. Looked at from a different angle, the present is only 15 cmts. of space and 30 seconds of time, the space where you stand on a precipice of time with never to be retrieved factors behind you and never to be known factors before you. What you would do in those 30 seconds determines the future. Your life is useless if you succumb to circumstances, and your future is bright if you make a mark. This is because the key to future is right now in our hands, which will slip off if we are not careful. We do need wisdom and knowledge for the right use of the key.

That key is higher education which would decide hereafter whether we deserve to exist with dignity or honour or we would be tied to someone else's chariot to do the beast's job. Unless we revamp our entire educational structure, we would be condemned to be the camp followers of others. Science and technology are developing so fast that our grandchildren, if not our children, would be in beeline for tickets to the moon, or at least for a joy ride in the space. In this exciting drama, what is our role would determine our future. The purpose of this paper is to say a few words about what sort of higher education we need to be at par with those who would control the nerve centre of all human progress and nature.

Building for future would first require the realisation that universities of tomorrow would not merely be information service centres, but powerhouses to ignite creative thought. Our main job would be to know how to provoke thought, and how to make our alumni a thinking machine generating new ideas. First we have to determine our objectives or the conceptual framework of higher education for the future. Those objectives should be not merely to preserve, acquire, disseminate and extend knowledge, but also certain other essential concepts such as : promote scientific and rational temper, preserve cultural traditions, inculcate basic human values, develop work ethics, train for living together, cultivate arts, broaden humanities, imbibe skills and enrich the quality of life. Let us remember what education or enlightenment is. It is the process of current generation guiding the future generation into the body of knowledge which is related to the experience of life. Education is the act of sowing the seeds of knowledge which should blossom forth on the horizon of human fellowship, a kind of training to make our youth live harmoniously and graciously with their own fellowbeings. Timeless values are ingrained in the rich experience of the past which should be reinforced with the experience of the present to pass it on to the future. We have to make our universities, the powerhouse of knowledge, the sanctuaries of our inner life, and the think tank of the people.

**Vice-Chancellor, Goa University.*

This could be done if we could manage to make our alumni cultured, creative and committed to resolve the crisis of present-day values. This crisis lies in the fateful alienation of our teachers and students from the realities of life, which has created a dichotomy resulting in the distortions of the methods and goals of national development. Our alumni have been too long cut off from the mainstream of life, as if living in an ivory tower, being lost in the theoretical and abstract aspects of knowledge. Consequently, knowledge is not being transmuted into power. Science remains theory without becoming technology. Look at Japan or even smaller countries like South Korea or Taiwan or Hongkong or Sweden or Switzerland. We have limitless number of scientists and yet we are so poor in technology that we are only in the assembling stage, and not even in fabricating stage, much less in inventing stage.

There is an international yardstick to measure creative genius. The entire sub-continent of nearly 1000 million people, including India and Pakistan, has produced only three Nobel Laureates during the last fifty years (Khurana, Chandrasekhar, Abdus Salam) and all of them outside India. A single university in USA, whether Harvard or Berkeley or MIT has more Nobel Laureates than India has ever produced. Even if you argue Nobel Laureateship is more in giving than in taking, the fact remains that in the history of science, technology and invention since the time of Newton, the number of Indians is so small that they could be counted on the fingers of a single hand. This is in contrast to what England or France or Germany or America or Russia has done, whose record runs into columns and columns of encyclopaedias. Is it not a point to ponder, and excite our consciousness that unless we are stimulated to revive our traditions of Paninis, Aryabhatas, Susrutas, Dhanvantries, Kalhanas, Ibn-e-Khalduns, Ibn-Rushds, Alberunis, Abul Fazls, Tagores, Ramanujans or Ramans, we would be pushed to the wall. What is required is a basic cycle of education by which linkages could be established between higher learning and outside world, which would widen our vision, and may lead to convert our intellect into a dynamo to generate creative thought.

Our universities of future would require scientific method of management. Those who are experts in this line would indicate that success would depend upon six important factors—planning, organizing, staffing, directing, controlling and coordinating. We have ideas but we fail in implementation. For implementation of our policies we would have to take into account the prevailing social value system, fixing top priorities, understanding the problems of the learning process, creating the necessary intellectual ecology, and providing adequate funds and infrastructure. This kind of planning would automatically demand dynamic leadership which defines the institutional objectives, determines the methodology of plan action, provides the strong will to achieve the goal, and implements the entire programme.

Our main job would be to create the necessary intellectual ecology in our institutions of higher learning, the right atmosphere and temper with a high degree of motivation not to be satisfied with anything but the best. The intention is to make our universities centres of excellence, but every step we take retards rather than accelerates that process. All issues that vitally concern the future would require team work. How to coordinate and bring about unity among the different segments of our structure has become a serious problem. Perhaps a full, free and frank discussion among the alumni on all aspects would be required. Such issues as how to make the system work more efficiently, how to improve decision-making process better and smooth, how to cut unnecessary cost, how to introduce innovative measures, how to motivate acceptance of a change, how to inject better work ethics, how to overcome inertia, which are all sensitive and crucial issues should emanate from below rather than imposed from above. Instead of entrusting the thinking process to small section at the top, it may be far better if the entire teaching community is involved in finding the solution to difficult problems. This body could tackle even more complicated issues such as what social, political, economic, cultural or regional factors impinge upon the successful functioning of our system, how to overcome them, and how to maintain steady tempo of progress.

A university is a social institution which has to interact with the society. Interaction may be helpful or harmful. Many elements may be interested in the growth of the university, but a small element is enough to hurt its interests. To have fifty friends is not enough, but one enemy is too much. What is desirable is a continuous analysis of the situation. The dynamic nature of education requires changes, flexibility and innovative measures, which would all be futile if all members do not effectively cooperate. It is in seeking this cooperation that interaction is necessary, but the whole operation must be performed with great care and skill, or else universities would become the pocket-boroughs of some vested interests. In the pull and push pressure of some forces, universities would become a machine with more brakes than wheels.

An area of legitimate activity of our universities in the future would be their linkages with industry, agriculture, business, banking, service agencies, research centres, development sectors and so on. In the West much of research is done by the universities for the industry which endows heavily for its projects. This is beneficial both to the university and the industry. It would be cheaper to the industry to get the job done at a marginal cost rather than set up the entire apparatus of research, and it would be beneficial to university whose main business is research, and whose survival would depand upon creative thought.

Autonomy and accountability should form the essential components of our future university system. Freedom of action, non-interference from any quarter, and only that much control from higher-ups as is absolutely essential to ensure well utilisation of grants would help our universities function well. Likewise, autonomy implies accountability. The power, trust and authority vested in a university should never be misused. A recent study has listed the issues that inhibit our growth. They are : rigidity in the system owing to lack of motivation in the structure; centralisation of decision-making; absence of correct data and information, lack of harmony at all levels; erosion in innovative ideas impeding growth; psychological resistance to change; lack of will and strength to implement the schemes; lack of understanding of the dynamics of the system; lack of skill to face the challenges and meet the complexities of the system; cumbersome and obsolete procedures of the system; external pressure, creating instability and nervousness; and absence of long term perspeetive plans. We have to find answers to these problems in order to liberate our universities from degradation.

These problems could be solved if we are sincere in removing the inhibitions. Suggestions for their removal would be : adopt updated rules, regulations, ordinances and statutes; decentralise power; modernize evaluation system, financial management, and administrative machinery; and introduce curricular reforms. Dr. Yash Pal has rightly said that revising our syllabi is making a dead body move in the grave. An observer has remarked that if anyone is interested in knowing how the British universities looked like a century ago, he has merely to go to any Indian university. No where mobility is so slow, so out-moded and so outdated.

21 MAR 1988
C.F.T.R.I., MYS

University system is a human management process, and not a push-button system. Hence an element of human approach becomes essential. It is strange that the type of unity and solidarity that exists at low level of human behaviour is absent at a high level. Bad social elements like thieves and goondas have a solidarity of their own but not two enlightened groups, whether of Professors or Doctors or Lawyers. In the university system where inter disciplinary approach is required, such harmony becomes crucial. High research, say in superconductivity, does require cooperation from different disciplines. Somehow in India nothing works without pressure, and if pressuse

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A Weekly Chronicle of Higher Education

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is brought into this sector, the whole structure would collapse. It is the inner urge of the intelligentsia to overcome small considerations and work in team spirit which is wanted. Assigning definite role and responsibilities to well-defined units, identifying the exact areas of their collaboration, the flow of authority, control and co-ordination from an agency that commands respect from all, and more than all, the clear vision of the goal ahead which should subordinate all other considerations might motivate our scholars to achieve something substantial. Otherwise, what D.O. Elliot has said would come true. "You know nothing about politics until you have worked with academics. Nowhere is the political infighting so brutal and vicious, and the reason for that is that the stakes are so low". R.G. Ingersoll is constrained to remark that colleges have become places where pebbles are polished and diamonds are dimmed. It is also on record that an American teaching faculty was once described as a random collection of unpredictable academics united in a grievance over car parking. Our anxiety is that such a thing should not happen in India. Carefully laid down principles of work norms religiously observed by upper echelon would build up nice work ethics. Incentives and rewards, appreciation and acknowledgement of good service would pump up high spirits. Simplification of procedures and encouragement of a habit to solve problems rather than create problems would offer the necessary logistics to win the battle of excellence.

The crux of the problem for the improvement of our system is the ability to synthesise institutional goals with goals of the individuals. The trinity that functions in the university—the faculty, the alumni and the administration—pull in opposite directions. Certain teachers are genuinely interested in research, and others, in perks. We forget that happy people are those who are thankful for life's responsibilities rather than for its rewards and prizes. We forget also the fact that to be without some of the things we want is an indispensable part of happiness. In what circumstances Thomas Alva Edison or Ramanujam or Raman worked should be an eye opener to us to realise that a set of circumstances too favourable would rather hinder than help growth.

The most important requirement of a university staff of tomorrow would be sheer efficiency of action, whether it is planning, designing, operating, manufacturing, managing, training or teaching. What the country needs is the **productivity-oriented-efficiency**, and not **production-oriented-efficiency**. What we mean by this is that we should train our youth to be productive, creative, inventive and original rather than simply get absorbed in production oriented centres. Our best brains have gone abroad, and majority of them have done exceedingly well in production-growth of their employing agencies. This is not a happy situation. This brain drain has effected us in losing the best talents, and this talent is only playing second fiddle to master-brains abroad who exploit them to do all spade work. We are in a triple disadvantage. Our best talent is not available to us; they are helping someone else to get the credit; and we would have to look for ever to others for high-tech. The sooner our institutions of higher learning correct this imbalance the better.

In conclusion it must be said that the atmosphere today is surcharged with high currents of change in higher education, as our nation is seized of the situation. History tells us that progress depends upon three factors, knowledge, skill and devotion. Knowledge generates ideas, skill transmutes ideas into power, and devotion sustains the tempo of work. Nations have risen and fallen in accordance with their ingenuity to learn and improve. A small nation like Japan has become a marvel of science and technology. A country like India with immense potentiality to improve could doubtless be among the powers of the earth in invention and industry, and in knowledge and wisdom, if only we put our heart, mind and soul into it. Dr. Radhakrishnan is right in saying, "If India is to confront the confusion of our time, she must turn for guidance not to those who are lost in the mere exigencies of the pasing hour, but to her men of letters and men of science, to her poets and artists, to her discoverers and inventors. These intellectual pioneers of civilisation are to be found and trained in the universities, which are the sanctuaries of the inner life of the nation". Universities of tomorrow should not fail the nation. We must change our mind to change our world. Now and then, not often, destiny gives us a chance. Now is the time. Tomorrow would be too late. Human history has become more and more a race between education and catastrophe. If we miss the chance we would land ourselves in catastrophe. Goal of mankind is knowledge, not pleasure. Noblest men scorn delights and live laborious days. Knowledge too demands labour, where each conquest should be the beginning of a new venture. Let us hope that Our Universities of Tomorrow would rekindle in us also that spark of interest which will consume our entire being in the pursuit of knowledge. Let that tomorrow be today, right now ! □

National Apex Body And State Councils of Higher Education

Anand Sarup*

I

The concept of a National Body covering the whole gamut of higher education, cutting across different segments, in the interest of greater cooperation and consistency in policy and for developing interdisciplinary research between agricultural, medical, technical, legal and other types of professional education was mooted in para 5.34 of the National Policy on Education 1986.

This was spelt out in greater detail in the Programme of Action for the National Policy on Education 1986 in August 1986. It was explained in the Programme of Action that the existing lack of a coordinative mechanism is becoming a problem, *inter alia*, because new disciplines are emerging for which courses of study have to be evolved keeping in view the need for inputs from related disciplines. There is no forum to deal with this lacuna. In order to remedy this problem, it was proposed to establish an Apex Body at the National level for higher education to deal with policy aspects of higher education, undertake integrated planning and reinforce programmes of postgraduate education and interdisciplinary research. Further details spelt out in the Programme of Action are reproduced below :

> "For areas such as agriculture, medicine, engineering, distance learning, etc., separate bodies will be set up. These bodies structured on the lines of the University Grants Commission, along with UGC itself, will oversee all operational aspects of higher education. The details of the legislation and/or other means for the establishment of these bodies will be worked out. The major functions to be performed by the apex body would be :
>
> (a) to advise Government on Policy;
> (b) to coordinate activities of the other bodies in different fields;
> (c) to encourage interdisciplinarity and promotion of interfaces among different areas;
> (d) to allocate resources;
> (e) establishment and management of common infrastructures and institutions; and
> (f) coordination of policy concerning external academic relations."

While the preceding paragraphs describe the mechanism for the operation of the National Apex Body for Higher Education, these do not reflect the philosophical backdrop against which education as a whole, with all its sub-systems, has to be viewed. This aspect was discussed in an earlier document brought out by the Ministry of Education in August 1985 entitled: "Challenge of Education" which sought to define the role of the education system in totality, starting with an emphasis on its institutional character which went beyond its main function of imparting education to pupils. It was stated therein that "the system is expected to generate new knowledge in all fields within the reach of the human mind. In addition, it has to evolve principles, methodologies for the application of knowledge for benefitting society. It is also expected to provide knowledge and skills for solving the problems of development. It must also enable the students to develop an understanding and a perspective of the physical and social environment. Research and development and extension, therefore, have to be accepted as essential ingredients of the educational process".

The second role assigned to education emphasised the socio-economic well-being, competence and creativity of the individual and it proposed that education would result in achieving the following objectives with reference to individual participation :

(i) Physical, intellectual and aesthetic development of personality;
(ii) inculcation of a scientific temper and democratic, moral and spiritual values;
(iii) development of self-confidence to innovate and face unfamiliar situations;
(iv) creation of an awarencess of the physical, social, technical, economic and cultural environment;
(v) fostering a healthy attitude to dignity of labour and hard work;
(vi) a commitment to principles of secularism and social justice;
(vii) dedication to uphold the integrity, honour and foster the development of the country; and

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**Chairman, National Book Trust, India.*

(viii) promotion of international understanding.

Besides promoting the development of the individual attributes described above, education was also expected to assume the responsibility for imparting knowledge about concepts and facts relating to different subjects and take steps for developing skills in the area of languages and communication as also nurturing interest in hobbies, games and sports. It was also meant to inculcate suitable habits in health care, mental application, management of time and conservation of physical, mental and emotional energy.

In relation to development and employment also, education was expected to have the specific role of equipping the pupils with competence, in terms of knowledge and skills, in various combinations, at different levels of understanding, relating to the opportunities of employment in the context of a particular pattern and rate of development.

Thus perceived, education becomes the main instrument for integrating individual into a social system and at the same time it also becomes the most effective means for equalising opportunities and reducing disparities between the human beings so as to ensure that a person belonging to any region, caste, creed, sex or economic starta would have a chance of developing his or her potentials to the full.

Since the interrelationship and the interdependence between different areas of knowledge, specially in applied fields and new disciplines, are wellknown there is hardly any need to argue for the need of a coordinative mechanism. It is also well-known that while the protagonists of individual sub-systems may go on laying emphasis on the separate identity and autonomy of their areas of concern, at the ground level the University system is characterised by a majority of bodies under whose umbrella, medical, engineering and agricultural colleges are functioning in large numbers. This disparity between the approach at the Central and State levels has resulted in structural anomalies because of which several institutions and many segments of the students and the teachers have been denied benefits which have become available to some others from one of these sub-systems at the national level. At the same time, individual institutions concerned with engineering or agriculture, with aggressive managers at the top, have been able to get assistance from the University Grants Commission as well as the AICTE or the ICAR.

It is expected that once an apex body gets established, some of the anomalies described above will disappear automatically. However, an Apex Body for Higher Education is necessary to realise the basic goals of education outlined earlier in this paper. We have no right to expect that public funds obtained from all starta of society should be employed for subsidising and sustaining a system of education whose products have no sense of identity with or commitment to a system of values which is relevant and necessary for the survival and development of this country. Only an Apex Body can rise above the narrow approaches to subject matter specialisations and address itself to policies, management systems, and other issues associated with value orientation. The National Policy on Education 1986 lays particular emphasis on value education and states that :

> "The growing concern over the erosion of essential values and an increassing cynicism in society has brought to focus the need for readjustments in the curriculum in order to make education a forceful tool for the cultivation of social and moral values.
>
> In our culturally plural society, education should foster universal and eternal values, oriented towards the unity and integration of our people. Such value education should help eliminate obscurantism, religious fanaticism, violence, superstition and fatalism.
>
> Apart from this combative role, value education has a profound positive content, based on our heritage national goals, universal perceptions. It should lay primary emphasis on this aspect."

It is hoped that when the apex body comes up, it will, besides being a mechanism for coordination, also become an instrument for realisation of the goals enunciated in the preceding paragraphs.

II

That there would be a State level planning and coordination of higher education through Councils of Higher Education was stated in the National Policy on Education 1986 and while presenting this proposition, it was also stated that the University Grants Commission and these Councils will develop coordinated methods to keep a watch on standards. This was later elaborated in the Programme of Action which recognised that there is, at present, no effective machinery for planning and coordination of Higher Education at the State level and further that there is also no arrangement for interface between the State Department dealing with Higher Education, institutton by institution, with the University Grants Commission. In order to fill this gap, it was proposed to set up State Councils of Higher Education as Statutory Bodies. The major functions of the Councils were to include :

(1) Preparation of consolidated programmes of higher education in each State.

(Continued on page 10)

Old Wives Tale ?

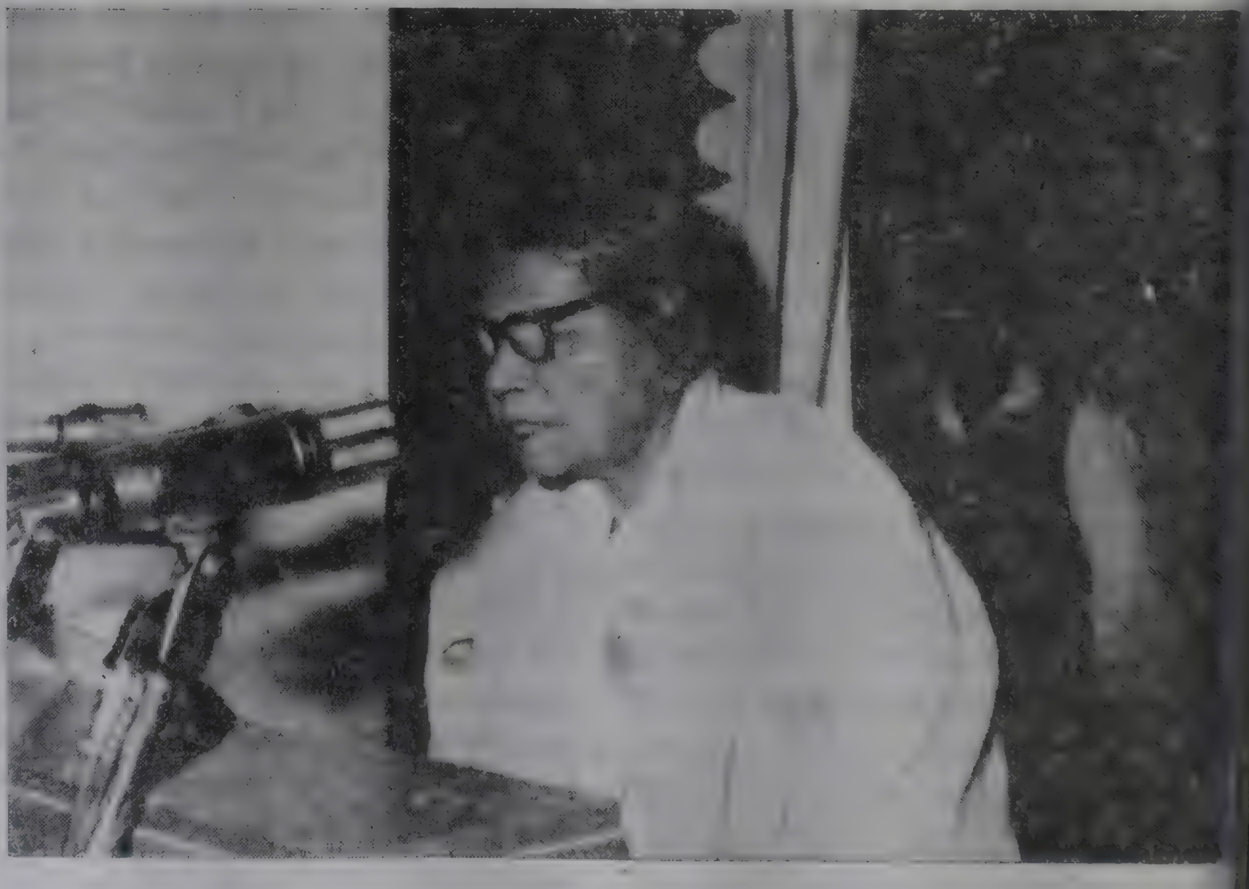
"Even today in some places girls are not wanted at any stage; when they are babies they are cast away, strangled or starved to death i.e. if they are not destroyed at the foetal stage; their education, when they do get a chance, is interrupted by the universal custom of marriage. In married life she has to endure cruelty of various descriptions, harsh treatment by a cruel or drunken husband or be burned to death by the inlaws in collusion with the husband for not bringing in a larger dowry, and if the husband pre-deceases her, she should not live to mourn but share his company at the funeral pyre", lamented Padma Bhushan Smt. Lakshmi N. Menon, former Minister of State in the Ministry of External Affairs, Govt. of India, and added, "If we think that all this is old wives tale, we are mistaken". Making a forceful plea for girls' education while addressing the 52nd Annual Function and Convocation of the Banasthali Vidyapith, Mrs. Menon said, "Education may not be a panacea for all evils, social and economic. But certainly quite a few problems are easy of solution if people know how to read". Excerpts

It is no matter of pride that our country holds a very low position in the matter of literacy. Among the 22 Asian countries, India holds the last place. And in India Rajasthan comes last, especially where women's literacy is concerned. According to the census of 1981 national literacy rate for women in India is only 24.88. This varies from state to state from 68 in Kerala to 11 in Rajastan. The relation between poverty and illiteracy and health has been pointed out by economists, sociologists and nutrition experts. But our Government thinks and our leaders have expressed the view that illiteracy is no bar to democracy. What is the Evidence? We have conducted 8 general elections involving millions of voters men and women. Most of them are illiterate and the elections were peaceful and the results not bad. Our people in the rural areas were characterised by our erstwhile rulers as placid, pathetic and contented and after 40 years of freedom our people are peace loving and contented and would willingly vote for the lantern, horse, tree and other equally ridiculous symbols because they are unaware of the broad issues before the country. Perhaps their thoughts and concerns are concentrated on the possibility of the next meal !

Our socialist democratic government has not yet fully realised that the real problem, that faces the country is the problem of hunger and poverty. We cannot get away by saying that our poverty is due to population. In every country manpower is intellingently utilised to eliminate poverty but this can happen only when the masses have a modicum of education. Other countries which came out of colonial rule after we did, are forging ahead by giving priority to mass literacy. When we are told that Ethiopia which began with a 14% literacy in 1982 is expecting to achieve total literacy by 1990, we are not impressed because we have democracy. Today all our expensive schemes, plans and programmes dry up in the desert sands of illiteracy and incompetence. Competence can come only with conviction and conviction arises out of understanding. When that is not present the result can only be chaotic waste of resources. Education may not be a panacea for all evils, social and economic. But certainly quite a few problems are easy of solution if people know how to read.

As it is, our educational system is like an upturned pyramid. The base, primary education, which should be strong and stable is weak and wobbly. Although we claim to be socialist, secular and democractic, our education system has none of the features we claim for it. It is socialism neutralised by reservation, discrimination based on caste, religion and community. In all admission and application forms caste, religion and state is a must. This is because of our policy of reservation for Scheduled Castes and other backward sections. The system is not democratic. Municipal schools which cater to the poorer (masses) sections are usually ill-housed, ill-equipped and ill-taught. There is no equality of opportunity. On the other hand, government and private managed schools are beyond the means of the poor and lower middle classes. We, in India are never tired of saying that the wealth of knowledge is the greatest of all wealth. Yet we deny that to our people; education has become elitist and it makes those who cannot afford strangers in their own country. Instead of equality, we have rank inequality at every level of education. Even though we have free primary and secondary education progress is painfully slow. The only solution to the problem seems to be the provision of minimum outlays required for achieving the constitutional goal of universal primary education. Today, the enrolment is as low as seven percent for girls in Rajasthan while, the all India level is as high as

75.5%. This of course does not take into account poverty which is responsible for heavy drop outs, social attitudes and tradition. Even today in some places girls are not wanted at any stage; when they are babies they are cast away, strangled or starved to death i.e. if they are not destroyed at the foetal stage; their education, when they do get a chance, is interrupted by the universal custom of marriage. In married life she has to endure cruelty of various descriptions, harsh treatment by a cruel or drunken husband or be burned to death by the inlaws in collusion with the husband for not bringing in a larger dowry, and if the husband pre-deceases her, she should not live to mourn but share his company at the funeral pyre. If we think that all this is old wives tale, we are mistaken. If we think that India has progressed to such an extent that soon we will be having computer in every village even if we don't have potable water; that we do kill cattle to eat and export meat and starve them while proclaiming India is a land of Ahimsa of the Buddha, Mahavira and Mahatma Gandhi, we are fooling ourselves. Notwithstanding all the education we have received and are still receiving, our life is enveloped in a thick fog of insincerity, dishonesty and cruelty. We have a habit of finding someone else for the responsibility of our mistakes and incompetence. We still blame Lord Macaulay for the system of education devised by him. Yet we have hardly done anything t. change the core of the systemo Lord Macaulay 's aim was to teach English to Indians so that the required number of clerks can be made available for the East India Company. He also wanted to turn Indians into Brown Sahabs. If the success of any scheme is the fulfilment of the objectives, Macaulay was remarkably successful in both, because, even after forty years of freedom, besides, appointing commissions and committees to make recommendations for reforming the system, very little has been done to overhaul the much maligned existing system. The recommendations were totally or partially ignored, or parts of them were added on to the prevailing system. Today education is in a holy mess—"the fault, dear Brutus, is not in our stars, but in ourselves if we are underlings". What have we done so far? More classes are added, new subjects are introduced without any consideration for the over burdened youngster who is relentlessly goaded to compete and become a rank holder. Is it because we have no faith in our ability to make a decision or afraid to make the break with the past ? A change even if it is from the worse to the better is inconvenient that is perhaps the reason why do we start institutions with great ideals and eventually change them into something which ultimately merges into the mainstream. I know of many an institution which has been started as innovative and experimental, and ultimately becoming the part of the system. Parents and students accept education as a government-job oriented venture. This education is very costly. It costs fifteen thousand to twenty thousand rupees to produce a graduate, four times as much for engineering and other types of professional graduates. The saddest part is that we never use our education to serve the millions who are deprived of even primary education. We use our education selfishly to amass wealth to climb the social ladder and to batten ourselves. Considering that three-fourth of the revenue is from indirect taxes, it is criminal to produce and increase the number of educated unemployed to satisfy the demand for engineers in the USA and doctors to run the British Health System. We sit complaining about brain drain. The tragedy is that the existing system remains practically uneffected. A number of subjects are introduced and learning by rote continues with little relevance to the conditions prevailing in the country or the



Smt. Lakshmi N. Menon delivering the convocation address.

requirements of personnel in the planned economy.

Once in Lok Sabha Acharya Kripalani reminded the members not to worry about the English language in India. As long as children talk of Mummy and Daddy English will remain in India. Today our children are sent to English medium nursery schools and learn to sing Ba Ba Black Sheep........., Twinkle Twinkle Little Star......... Other changes in the education system are glaringly contradictory to the ideals we profess. For example, first we have Doon School, then other public schools from Sanawar in Himachal Pradesh to Lovedale in Ooty, then the central schools professional colleges and academies, and now navodaya schools galore. I would call it a waste because the cost of producing a graduate is 80 times more than giving primary education to a child. So one graduate is denying the right to elementary education to 80 children. The cost is much more as we go into professional courses. One may well ask who are the tax payers meeting this expense. Since the revenue from indirect taxes is estimated as three forth of the total, all of us are tax-payers : the poorest who buys his daily ration as well as the rich who are perpetually involved in tax evasion cases. A radical change is not possible in India. The Indian behaviour in this as well as in all social reform matters, is peculiar. The instinct for borrowing and at the same time clinging to everything and not rejecting what is outworn and outmoded give rise to the conservative attitude and our attempts at educational reform can be expressed by these lines from Omar Khayyam "about it and about but ever more came out, by the same door wherein I went." Here we might pause to find out what really is the objective of girls education. Long years ago I was talking to Dr. P.K. Ray, the first Indian principal of the Presidency College, Culcutta. When I expressed regret that I did not study logic in my intermediate class, Dr. Ray, who had specialised in philosophy at the Edinburgh University, said, "you are unnecessarily worrying. A woman should train her emotions and not the intellect." Young as I was and inclined towards feminism, I thought he was wrong. About that time in the early thirtees there was quite a debate about differential curriculum for boys and girls. The D.P.I. of U.P. Mr. Mackenzie at a public meeting asked why girls should learn quadratic equations when it would be more useful and helpful if they learn to sing a lullaby. There was a battle of words in the Pioneer, a leading paper in Lucknow at that time. Since then the world has seen vast changes including the awakening among women, agitation by women for equality, the much 'maligned womens' liberation movementits rise and fall, and the failure of the American women to get the equal rights amendment approved by a two third majority of the state legislatures. However, it is true, in certain spheres, women as a class, may have qualities somewhat different those of men. But no generalisation is possible. It is said that a human being has more than 120 inclinations, tastes and talents. We have to deal with them by counselling and guidance so that they may not become misfits. Hence the end of all education for girls ought to be enlargement of her capacity for acquiring wisdom; wisdom being defined as a sense of values or the ability to choose between things that are worthwhile and those that are not. To make such a choice a human being needs a trained conscience to keep his behaviour on the rail and trained heart to teach the head to know its place and limitations, and trained powers of enjoyment. And of course, girls should be influenced by guidance and counselling when they make their choices. I believe that on the lap of wemen rests the future of the world; because women can better understand than men that peace and true freedom can be achieved only by way of love.

In a bisexual society human factor should not be under-estimated. Women are as important as men and they are all human beings. To be ignored or forgotten, illtreated or dishonoured is a bad reflection of the moral and cultural level of the community. It is not in jest that our scriptures have said so many nice things about women. They went to the extent of saying that the gods desert the hearth where women are not honoured.

A girl's education should be complete and must give her unlimited opportunities of development because a girl's life is unpredictable and discontinuous. Her life is one of constant interruptions, a conflict between social attitudes and individual interests. Anything might happen : she may be a beautiful singer and dancer, or both and her in-laws and husband may dislike both. She may be married to a rich businessman who may lose everything in speculation and she may have to face want and discomfort. The only way to face these challenges is to give her a good education which will enable her to face any eventuality.

I would like to say a few words about women's share in the eradication of illiteracy among them. To this day many people, parents and girls themselves do not know why they go in for higher education. Of course, all of them know the ultimate aim of girls education is marriage. Whether you fail or pass obtain rank in the University or Professional examination, woman by social opinion and attitude is predestined to marry. It is seldom, if ever we come across women who have deliberately rejected matrimony and devoted themselves wholly and completely for the pursuit of excellence in the professions. One often hears the complaint that the money spent on girls' professional education is wasted if she settles down to a married life. This is a one sided evaluation. I know of doctors who after medical education preferred to become journalists and farmers, engineers, hoteliers and professors who ended up as traders and businessmen. This condition of square pegs in round holes is the result of absence of guidance and counselling at the appropriate stage. But a woman who is educated is a great asset by becoming a better mother, better citizen and a liberated human being. I have no complaints if all educated women do not enter the professions. I recall an incident mentioned in Flexner's 'Universities : British, American and German'. Alice Palmer the wife of the President had never learned cooking but she was able to turn out a most delicious cake and Bridget, the maid who was looking on said 'this is what I call education, being able to do something without training'.

Earlier I had indicated the cost of primary education vis a vis higher and professional education. Those of us who have had the advantage of education should realise one thing. We owe a debt to our society because most of the funds come from the poor who do not know their entitlement and the denial to which they are subjected. A debt should always be honoured. We are told that three fourth of the revenue comes from indirect taxes.

Five years ago nine all India women's organisations decided that we should challenge the evaluation of the World Bank that by 2000 AD India will have the largest number of illiterates in the world. It awakened in our organisations a sense of our responsibility to work against this shameful state of affairs. Long ago in 1922 Gandhiji had said that mass illiteracy is a sin and a shame. We decided that by mobilising the goodwill of the nation, we should be able to achieve total literacy for women by 2000 AD. Hence we constituted an all India committee for the eradication of illiteracy among women. Now we are engaged in seeking public support to fight this menace of ignorance among our women. Government action is slow and is not commensurate with people's enthusiasm. We think that it is the bounden duty of all men and women, all boys and girls and schools and colleges to take a pledge to make atleast two other literate women. Where the Government finds the task difficult, we, the people, must show that there is nothing so effective or of permanent value as *janasakthi*. In conclusion, I would make a personal appeal to bear in mind our duty as citizens to our country and our concern for women who are usually and officially classed with the backward sections. ☐

National Apex Body . . .

(Continued from page 6)

(2) initial scrutiny of the development programmes of universities and colleges.

(3) assistance and advice to UGC in respect of standards.

(4) assistance to State Governments in determining the block maintenance grants.

(5) encouragement of the programmes of autonomous colleges.

(6) monitoring the progress of implementation of programmes and assessment of performance of institutions.

(7) advising the State Governments in setting up new institutions.

It seems self-evident that there my be no need for State Councils of Higher Education in States which have only a few universities. On the other hand, those States which have a large number of unversities need to have State Councils because, in the absence of these, the policy formulation function does not take place and instead ad hoc decisions are taken, institution by institution, resulting in those who already have getting more at the expense of the growth of new or not so impressive institutions in educationally backward areas.

Sometime an arugement is put forward that by setting up State Councils of Higher Education or an Apex Body at the national level, the autonomy of the new institutions might be curtailed. While there is every possibility of further curtailment of the autonomy of individual institutions, but it will not take place because of the setting up of these mechanisms. This will happen mainly because the basic concept of accountability has not been accepted by either educational institutions or various sections associated with them. Very few institutions have taken the initiative to develop criteria for performance audit. Almost nobody is raising the issue of social costs and individual benefits. In other words, "the business is continuing as usual". It will continue as such as long as these enclaves of agricultural, medical, engineering and general education continue to operate with a world view determined not by goals of education but by the subject matter of teaching.

It is only a set up like the National Apex Body which can take a holistic view of education and lay down appropriate procedures to bring about a qualitative change in the education system. Such a body will be able to do so because it will not be concerned with individual institutions or individual sub-sections of the educational system. ☐

The IQ Controversy

The Institute of Psychology of Jnana Prabodhini, Pune, recently organised a national seminar to discuss various problems related to the IQ controversy. Inaugurating the seminar, Prof. Devdatta Dabholkar, Ex-Vice-Chancellor of Poona University, observed that the IQ controversy, touched politics, economics, sociology and all the other social sciences. The international debate had so far been useful because it had helped clarify some of the concepts and highlight research issues. He said that the key to the solution of the IQ controversy could be found in the social role of the intellectuals. Referring to the ancient rishis and modern intellectual giants like Russel and Einstein, he remarked that the message of their life was that if one was endowed with superior abilities one did not get a superior right to rule but a superior opportunity to serve.

Dr. P.V. Sukhatme, President of Jnana Prabodhini, in his keynote address on the theme 'Man Environment Interaction' quoted evidence from his eight village project funded by the Department of Science and Technology and emphasised that a child is born with an innate capacity to learn and it is the responsibility of the school to provide the appropriate environment as a tool for achieving living standards suited to culture, needs and resources. He referred to the experimental work which showed that careful selection of environmental conditions at critical periods in the development of an individual could give a rise to a wide array of phenotypes so different that they appeared as if they were gene mutations. He concluded that man and environment synergistically interact to regulate man's behaviour within limits defined by their co-variance.

Dr. Kunnankal, Consultant, Ministry of Human Resource Development in his valedictory address observed that constant efforts were necessary to better utilise the intelligence by taking into account its social relevance.

The seminar was held in five sessions and the topics discussed included (1) Review of the IQ controversy; (2) IQ controversy in the light of various theories of intelligence; (3) Role of intelligence testing in IQ controversy; (4) Nature of Intelligence; and (5) Role of people of high intelligence in national progress.

Our 125 scholars from various branches of knowledge, namely, heredity, medicine, psychology, education, statistics, philosophy, ayurved and yoga participated in the seminar where over 30 research papers were presented.

UGC Funds for Labs and Libraries

The University Grants Commission (UGC) is reported to have decided to grant Rs. 2.5 lakhs to each eligible college and Rs. 20 lakhs to each university, for providing teaching laboratories, as they were essential for scientific study. According to Prof. Yashpal, Chairman of the Commission, this facility was being extended to the Universities by the Commission, although it is primarily the responsibility of State Government to look after them. The Commission, he said, had embarked on some major projects known as inter-university centres, for better interaction between students and teachers of different universities who would be grouped together under each centre. One such centre had been set up in Delhi for nuclear science and another at Pune with a giant radio wave telescope for astronomical studies.

Among other things, the Chairman said efforts were on to boost libraries in the universities and help them to acquire books and journals which had become costly. In this connection, he said, Rs. 7 to 10 lakhs would be paid to each university and Rs. 25,000 to each college.

Regarding setting up of sports complexes in universities, proposals to the tune of Rs. 200 crores had been sent for financial assistance to be spread over Seventh and Eight Plan periods. He said the Commission would soon start academic staff colleges for interaction of teachers and for better understanding of professional obligations under coordination. This is a place where teacher and taught would play a new role, he said. With regard to application of revised UGC scales to college teachers, the Chairman said Union Government would issue notification soon which would also bring in librarians and physical directors under its purview.

U.S. Award for Dr. Sengupta

Dr. P.R. Sengupta, former director of the North Eastern Regional Institute for Science and Technology, has been nominated for the University of Louisville Grawemeyer Award in Education for 1983. The award which carries a prize money of $150,000 is given in recognition of outstanding ideas in education, ideas that have the potential to produce significant improvements in educational practice or attainment.

Dr. Sengupta has designed an academic programme for technical education consisting of three successive modules of about two years each. The first module will end at the level of a technical vocational certificate, the second at the diploma level while the third module will lead to a bachelor's degree. He has also suggested that refresher courses of six months' duration each should also be conducted.

According to Dr. Sengupta each module will provide a terminality corresponding to an occupational level while at the same time providing an entry point to the next higher module in the academic programme, finally leading to a degree in engineering or technology after completion of the third module.

He has also suggested two separate sets of academic programmes for continuing education at the level of craftsmen, technicians and engineers which will consist of learning modules of six-to-twelve-week duration for updating the knowledge and information base in different fields of technology.

Postgraduate Courses in Psychiatry

Bangalore University proposes to start postgraduate courses in psychiatry from September this year. This was disclosed by Dr. G.N. Reddy, Director of the National Institute of Mental Health and Neuro Sciences (NIMHANS). He said, as part of its plan to participate in the national mental health plan, the NIMHANS had trained 130 doctors of primary health centres all over the State. He stressed the need to provide mental health care not only in hospitals but also in small health centres in rural areas.

Highlighting the increased responsibilities of institutions of its kind, Dr. Reddy said the NIMHANS was now entering a new phase of specialisation and research. He said the World Health Organisation was collaborating with the NIMHANS in research activities in various fields. The institute's collaboration with US agencies had also been extended by three years, he said.

New Syllabus in Economics

The University Grants Commission (UGC) will implement a new Indian-oriented curriculum in Economics at undergraduate and postgraduate levels from the ensuing academic year to make the subject more compatible with the country's present needs. The new curriculum was framed by two committees of experts from various universities as per UGC guidelines. According to Prof. R. Bhardwaj, Coordinator, Curriculum Development Centre (CDC), Bombay University, each course has been organised in a series of smaller modules, an integrated focus of which would form a specific paper under considerations. These modules, core as well as optional have been provided with a preamble, he said.

The U.G.C. established C.D.C. in 1985 to prepare model curriculum to make higher education a national investment.

Research Methodology in Geography

The Department of Earth Sciences, Manipur University, organised a two-week Training Course in

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ASSOCIATION OF INDIAN UNIVERSITIES

notes that several misleading advertisements recently appeared in the newspapers in the name of the following institutions whose qualifications are not recognised in India :

International University of Missouri
University of East Gorgia
New Port University
Stanton University

These advertisements misrepresent the facts and create an impression that their courses are accepted by Indian universities. As these institutions are not listed in the accredited institutions of post-secondary education in their own country, the question of their recognition in India therefore does not arise. The advertisements appear for various correspondence courses in the field of management and allied disciplines, the titles of which are frequently changed to attract a large number of students. Local office contact in India is also changed from time to time.

Students, Teachers and others are welcome to seek information on the status of any university/institution from the Deputy Secretary (Evaluation & Information), Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi-110002.

Research Methodology in Geography from the 2nd to 15th February, 1988. The Training Course was inaugurated by Professor I.R. Babu Singh, Dean, School of Humanities, Manipur University while Shri E. Kunjeshwar Singh, Commissioner (Finance and Revenue), Government of Manipur, delivered the valedictory address. During the course of the training programme the participants, mostly college teachers and research scholars in Geography from Manipur and Mizoram, were exposed to the recent trends and research methods in geography and quantitative and cartographic techniques and problems of geographical researches with special reference to the north-eastern region.

Tokyo Award for JNU

The video film "Japanese Language Teaching in JNU" has been awarded the Special Educational Programme Prize in a video film contest held in Tokyo. Over 50 entries from 18 countries participated in the contest. The participating countries included China, Nigeria, Argentina, Indonesia, Saudi Arabia, Sri Lanka, Thailand and Singapore. The judges included eminent video experts from Japan Broadcasting Corporation (NHK), All Japan Radio, Television Engineering Services Corporation, Japan Telecom Engineering and Consulting Services, International Television Association, Japan and Sony Corporation.

The video film was produced at the Language Lab Complex in the School of Languages, jointly by Mr. A. Chattopadhyay and Er. V.K. Sahni.

Anna Varsity Water Resources Centre

The High Level Technical Committee on Hydrology (HILTECH) Ministry of Water Resources, Government of India, has identified the Centre for Water Resources of this University as one of the participating Organisations in the National Hydrology Project on Water Quality. A sum of Rs. 62.37 lakhs spread over a period of 5 years has been sanctioned for the University in this behalf The project envisages creation and strengthening of laboratories, staff, buildings, training and computer facilities for studying, the typical water quality problems.

The UGC has also identified the Centre for Water Resources to receive special financial support under the COSIST programme for strengthening postgraduate teaching and research in Ground Water Resources and Water Resources Management.

News from Agril. Varsities

Senior Arab Scientists Visit HAU

An 18-member delegation of senior scientists and administrators from 9 Arab countries, namely, P.D.R. Yemen, Somalia, Jordan, Morocco, Sudan, Tunisia, Libya, Algeria and Syria accompanied by Dr. Maharaj Singh, Dy. Director General (Education), Indian Council of Agricultural Research, New Delhi, visited Haryana Agricultural University recently. The purpose of the visit was to see the organisational structure, functions and programmes of the university and to study the various ways and means by which the agricultural institutions are able to boost the economy of the Arab countries.

The members of the delegation visited the constituent colleges, research farm, Animal farm, Seed Technology Laboratory and the agricultural museum of the College of Agriculture. They also held discussions with the Deans and Directors and the Vice-Chancellor, Dr. Har Swarup Singh, on the mutual cooperation of India and Arab countries and also the system of transfer of technology.

New Test for Theileria Diagnosis

Dr. A.S. Grewal, Professor of Immunology in the College of Veterinary Science of Punjab Agricultural University has developed a new and improved immunological test for the diagnosis of Theileria infection in cattle. The test is highly sensitive, specific, simple to do and adaptable to mass screening of blood samples in a shorter time. The test is based on the modern technology of Visual-Dot System of Enzyme-linked Immunosorbent Assay (Dot-Elisa) which is more versatile and economical amongst various ELISA systems. These characteristics of the test make it practical for the Tick Borne Diseases Research Team to undertake mass screening of blood samples from animals in the filed.

According to Dr. Grewal, the industrial significance and field applications of this test would be to provide information on incidence/prevalence of theileriosis in cross-bred cattle, buffalo and indigenous cattle; rate of occurrence of new infections from season-to-season; role of local cattle and buffalo as reservoir of infection for cross-bred cattle; assessment of demand and practical significance of Theileria vaccine for its control; monitoring vaccination trials in the field; correlation between infection and productivity of the animals.

Sports News

Freedom Forty Hockey Match

A match between Indian Universities Hockey team and a team consisting of former olympians was organised at Bangalore on February 14, 1988 to mark the fortieth anniversary of our independence. The underlying idea was to acquaint the young players with the techniques of the game employed by senior players in the yester-years. As expected the maturity of the former international players prevailed upon the dash of the youth and they clinched the match by a narrow margin of one goal.

News from UGC

INSAT-1B Programme of UGC

Between 10th March to 30th March, 1988 the following schedule of telecast on higher education through INSAT-1B under the auspices cf the University Grants Commission will be observed. The programme is of one hour duration every day from 12.45 p.m. to 1.45 p.m. (Repeated from 4 p.m. to 5 p.m.) and will be available on the TV Network throughout the country. For the viewers in Delhi and surrounding areas these programmes can be seen on the second channel.

10.3.88

"Energy and Architecture"
"Early Andhra Coins"

11.3.88

"A World Out of This World"
"View From Space—I"
"Sun as a Nuclear Reactor-Solar Technology Today"
"To the Edge of The Universe"

12.3.88

"Santoor—An Introduction"
"Music Beyond the Frontier"
"Personality Development—Nrittya-I"

13.3.88

No Telecast

14.3.88

"Domestic Refrigerators"
"Images of Einstein"
"Vibrations of Music"

15.3.88

"Introduction to Marketing–I"
"Raw Materials—Copper"
"Gaining Employment—1st Step"

16.3.88

"Chromosomes and Sex Determination"
"Life on Sea Shores"
"Birds of the Night—II"

17.3.88

"Satavahana Coins"
"A World Apart, A World of Caves"
"Spring in Sikkim"

18.3.88

"Telescopes Through the Ages"
"View From Space—II"

19.3.88

"Meaningful Sounds—I"
"Personality Development—Nrittya—II"
"East Meets West"

20.3.88

No Telecast

21.3.88

"Rectifiers"
"Reflections on Waves"
"The Fictitious Forces: Their Origin"

22.3.88

"Introduction to Marketing—II"
"Gaining Employment—II"
"Understanding Money—I"

23.3.88

"Dosage Compensation"
"Cell Structure"
"Just 45 Minutes"

24.3.88

"History Before History"
"A Case History of a Volcane"
"Research for Tomorrow"

25.3.88

"Space Technology"
"The Sun as a Nuclear Reactor—III Solar Technology for Tomorrow"
"Solar Energy: The French Way"

26.3.88

No Telecast

27.3.88

No Telecast

28.3.88

"Filters"
"Molecules at Large"
"Science Learning Begins at Home"

29.3.88

"Karamvir Bhaurao Patil"
"Nikolai Lemonosov"
"Contemporary Artists"

30.3.88

"Somaclonal Variation"
"What's Wrong With Me?"
"University Round Up"

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are Indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month' while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research scholars and students of education are welcome to use these resources. The Library is open from 9-00 a.m. to 5-30 p.m. Monday through Friday. Access can also be had through Inter library loan for which requisition must be made through your Librarian.

ADDITIONS TO AIU LIBRARY

Alse, A.J., ed. *Adventure of ideas : Story of Dr. T.M.A. Pai and his works.* Manipal, Academy of General Education, 1979, xxi, 67p.

Andhra Pradesh. Committee on Higher Education. *Towards reorganising higher education in the state : Report.* Hyderabad, Andha University 1986. 19p.

Association of Indian Universities, New Delhi. *New technologies in higher education.* Delhi, Author, 1986. 119p.

Balbir, Jagbans K. *Aspects of training and research in higher education with case studies on India and Venezuela.* Paris, UNESCO, (c 1987) 308p.

Bhargava, Moti Lal. *Hundred years of Allahabad University.* New Delhi, Ashish Publishing, 1987. vi, 376p.

Commonwealth and International Conference on Sport, Physical Education, Dance, Recreation and Health, 8th, 1986, Glasgow. *Proceedings. 7 V. V.1. Coach Education. V. 2. Dance.* V. 3. *Kinanthropometry III V. 4. Sport and Medicine. V. 5. Sport, culture, society. V.* 6. *Sports science. V. 7. Trends and Depelopments in physical education.* London, E. & F.N. Spon (c 1986)

Daniels, Madeline Marie. *Realistic leadership.* New Jersey, Prentice-Hall (c 1983) x, 158p.

Emmanuel, Arghiri. *Appropriate or underdeveloped technology.* New York, Wiley and Sons (c 1982) 186 p.

Horne, John and others, ed. *Sport leisure and social relations.* London, Routledge & Kegan Paul, 1987. vii, 253p.

India. Central Statistical Organization. *Basic statistics relating to the Indian economy 1986.* Delhi, Controller of Publications, 1987. vi, 169p.

India, Ministry of Human Resource Development. *Analysis of Budgeted expenditure on education : 1983-84* to *1983-89.* New Delhi, Author, 1986. 226p.

India, Ministry of Human Resource Development. *Selected educational statistics 1984-85.* New Delhi, Author, 1936. v. 48 p.

India, Review Committee on the Scheme of University Level Book Production in Indian Languages. *Report.* Delhi, Ministry of Human Resource Development, 1987. 98p.

India, University Grants Commission. *U.G.C. Act 1956 as modified upto the 20th December 1985.* Delhi, Author, 1986. ii, 17p.

Indian University Association for Continuing Education, New Delhi. *Technology transfer through adult education centres.* New Delhi. Author, 1987. 56p.

INDIA's STRUGGLE for independence : Visuals and documents. Delhi, NCERT, 1986. 176p.

Jensen, Clayne R and Hirst, Cyntha C. *Measurement in physical education and athletics.* New York, Mocmillan (c1980) x, 300p.

Menefee, Selden. *Pais of Manipal.* Manipal, Academy of General Education, 1984. 276p.

Morrison, Ian, Comp. *Intersport rules and equipment of the game.* London, Pelham Books (c 1987) 160p.

National Institute of Educational, Planning & Administration, New Delhi. *Innovative approaches to university administration : Programme for Registrars of Indian Universities : Report.* Delhi, Author, 1984. 86p.

——————. *Orientation programme in educational planning and administration for college principals, 1984 : Report.* New Delhi, Author 1984. Discontd.

Psacharopoulos, George and others. *Manpower issues in educational investment : A consideration of planning processes and techniques.* Washington, World Bank. 116p.

Purkait, B.R. *New education in India.* Ambala Cant, Associated Publishers, 1987. 552P.

Shirali, Vishnudass. *Sargam : An introduction to Indian music.* Delhi, Abhinav Publications, 1977. 125p.

Slawek, Stephen. *Sitar technique in nibandh forms.* Delhi, Motilal 1987. x, 232p.

Tver, David F and Hunt, Howard F. *Encyclopedic dictionary of sports medicine.* New York, Chapman and Hall (c 1986) xxi, 232p.

Unesco. *World by the year 2000.* Paris, Author, 1987. Discontd.

Vatsyayan, Kapila. *Traditions of Indian folk dance.* Delhi, Clarion Books, 1976. 400.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities.

HUMANITIES

Philosophy

1. Sachdev, Mani. *Kanoon ke pravritiparak siddhant ka alochanatmak adhyayan.* Rajasthan. Dr. P.K. Srivastava.

2. Samanta, Bimalendu. *The concepts of meaning, verification and necessity as in Hume and logical positivism.* Burdwan. Prof. Mrinal Kanti Bhadra.

3. Singh, L. Bhagyachandra. *A critical study of the religious philosophy of the Meiteis before the advent of Vaisnavism in Manipur.* Gauhati. Dr. D.K. Chakraborty.

Language & Literature

English

1. Bhattacharya, Sudipta. *Individual consciousness and group consciousness in the novels of Virginia Woolf.* Andhra.

2. Jha, Pashupati. *The Face at the end of the Flare : A study of Fear in Sylvia Plabh.* IIT Delhi. Dr. (Mrs) Sunita Jain.

3. Mahmood, Nazira. *Female character in Jane Austen.* AMU.

4. Pande, Rajni. *Thematic study of Emily Dickinsons poems.* Bhopal. Dr. A.N. Gupta.

5. Patil, Anand B. *Western influence on Marathi Drama, 1818-1947.* Shivaji. Dr. P.R. Kher.

6. Puri, Usha. *Love and marriage in the fiction of Zora Neule Hurston, Ann Petry and Teni Morrison.* Rajasthan. Dr. (Mrs) Jasbir Jain.

7. Pushpakumari, V.K. *Feminism in the novels of Indian-English novelists, with special reference to the novels of Kamala Markandaya, Nayantara Sehgal, Ruth Prawr Jhabwala and Anita Desai.* Karnatak. Dr. (Smt) Sarojini B. Shintri.

Sanskrit

1. Kumar, Sunita. *Nature and function of Sakti in Kashmir Saiva Darshan.* Jammu. Dr. Uma Pandey.

2. Vani, B. *A study of Sangita Chandra of Vipradasa.* Osmania.

Hindi

1. Chaube, Vibha. *Ghananand ke abhivyanjana shilp ka anusheelan.* Ravishankar. Dr. (Smt) Mridula Sharma.

2. Gupta Pratihha, *Pura prateek yugeen sandarbh aur Dr. Lakshminarayan Lal ke natak.* Ravishankar. Dr. S.J. Kekre.

3. Jain, Sandhya. *Dr. Ramkumar Verma ke kavya ka anusheelan.* Devi Ahilya. Dr. G.N. Tripathi.

4. Jain, Sarita. *Narmada Sambhag ke Bundeli Bhashi kshetron kee sahityik parampara ka anusheelan.* HS Gour. Dr. Balbhadra Tiwari.

5. Khare, Kamini. *Varshari Rajya kee sahityik parampara.* HS Gour. Dr. Balbhadra Tiwari.

6. Mishra, Jyoti. *Chhayavadottar prabandh kavyon mein itihasik, sanskritik darshnik tattvon ka anusheelan.* Ravishankar. Dr. Ganesh Khare.

7. Mishra, Lakshmi Kant. *Tulsi aur Jayasi kee bhasha ka tulnatmak adhyayan.* Magadh. Dr. Gadadhar Singh.

8. Muhamad Tayab Hussain. *Bhisari Thakur : Vyaktitva evam krititva.* Bihar. Dr. Dhirendra Bahadur Chand.

9. Satija, Durga Devi. *Jayasi ke kavya mein chitrit samaj ka anusheelan.* HS Gour. Dr. R.C. Tripathi.

10. Sharma, Kusum Lata. *Rameshwarlal Khandelwal ke kavya ka swachchandatavadi mulyankan.* AMU.

11. Sharma, Sandhya. *Adhunik Hindi ke pramukh mahakavyon mein premtattva nirupan.* HS Gour. Dr. L.N. Dubey.

12. Thakur, Rajlakshmi. *Mahila upanyaskaron kee rachnaon mein premabhivyanjana.* Ghasidas. Dr. Jagmohan Mishra.

Urdu

1. Akhtar, Nurus Sayeed. *Studies in classical Urdu literature : Critical edition with preface of Shah Masnavi Behram Gor Bano Hush and Diwan-i-Samjhu.* Dr. Litt. Nagpur.

2. Khan, Zameer Ahmed. *Mirza Musharraf Yar Khan 'Sharaf' : Hayat aur Shairi.* Durgavati. Shri Abdul Baqui.

3. Khursheed Anwer. *Oakkani Urdu Qasayid kee mukammal aur tauzihi farhung.* AMU.

4. Khushhal Ahmed. *Urdu mein Bachchon ka adab.* Jamia. Dr. Muzaffar Hanfi.

5. Osman Ali. *Amjad Hyderabadi : Life and works.* Osmania.

6. Zaidi, Syed Ali Baqar. *Editing the Diwan of Mohd. Taqi Hawas.* AMU.

Bengali

1. Patra, Ranjushree. *Tarasankarer upanyase samajer abakshyayer rup.* Burdwan. Prof. Bijit Kr. Dutta.

Persian

1. Swami, Dharam Dev. *A critical edition of Tabqat-e-Shahjahani.* Jamia. Prof. Shoaib Azmi.

Arabic

1. Mohammad Salahuddin Umari. *Contributions of Mohd. Hussain Haika (d. 1956) to Arabic prose literature : A critical study.* AMU.

Tamil

1. Balakrishnan, S. *A critical study of Pattinathar's works.* Madurai.

Telugu

1. Nagamalleswara Rao, P. *Study of the place names of Ongole Taluk.* Nagarjuna.

2. Prameela Devi, M.S.R. *Folk musical and lyrical trends in Annamacharya's Sankeerthanama.* Nagarjuna.

3. Subba Rao, C. *Life and works of the poetbrothers of Palnadu.* Nagarjuna.

Geography

1. Jagdish Prasad. *Planning for integrated rural development programme, Sri Madhopur Tehsil Sikar, Rajasthan.* Rajasthan. Dr. R.B. Singh.

2. Nater Singh. *Geomorphology of the Tawi Basin, J & K.* Dr. H.S. Sharma.

History

1. Golhar, Chandrashekhar Dadaj. *Peshwa Balaji Vishwanath : Kavya va kamgiri.* Nagpur. Dr. (Kum) S.Y. Kothekar.

2. Jain, Mahavir Prasad. *Peasant landlord relationship in Mewar, 1880-1949.* Rajasthan. Prof. M.S. Jain.

3. Jyotish, Vinod. *1857 ke swatantrata andolan mein Jhansi kee Rani Lakshmi Bai aur Avadh kee Begum Hazrat Mahal kee bhumikaon evam yogdan ka tulnatmak adhyayan.* HS Gour. Dr. G.S. Tripathi.

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Institute for Plasma Research

(An Autonomous Institute of Dept. of Science & Technology)

GOVERNMENT OF INDIA
Near Indira Bridge, Gandhinagar Highway
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ADVERTISEMENT No. 02/88

SENIOR ENGINEERING POSITIONS AT IPR

The Institute for Plasma Research has been recently established by the Department of Science & Technology as an autonomous research institute to lead the country's magnetic confinement high temperature plasma fusion research programme. A research device of the tokamak type, christend ADITYA is in the final stages of assembly and commissioning. The technical subsystem of ADITYA include large toroidal ultra high vacuum system; equilibria magnetic field coils, coil cooling system, thyristor converter equipments for DC power for magnetic computer based data acquisition and control equipments.

IPR is looking for competent and result oriented engineering staff to lead the various technical groups. The requirements are as follows :

Engineer SC/SB (Computer Software)

Tokamak "ADITYA" is to be completely operated and controlled under computer operated data acquisition and control system based on VAX-11/730 system and CAMAC based serial highway driver. The incumbent is expected to develop computer software in both higher level and assembler languages for the system.

Engineer SB (Mechanical)

The incumbent is required to possess adequate knowledge of commissioning and maintenance of Air Conditioning Plants and ensure prompt execution of the jobs incidental to and connected with this item of work.

Qualification and Experience

Engineer SC (Computer Software) : M.E./M. Tech./M.Sc. Engg Fresh with specialisation in Computer Software or MCA/B.E./B. Tech./B Sc. Engg/M.Sc.+3 yrs experience or B.Sc./Diploma Holder+9 yrs. experience. **Engineer SB** (Computer Software) : B.E./B. Tech./B.Sc. (Engg)/MCA fresh with specialisation in Computer Software.

Engineer SB (Mechanical) : B.E./B. Tech./B.Sc. (Engg) with specialisation in Air Conditioning and Refrigeration. Other things being equal experienced candidates would be preferred for all the above positions.

Scale and Pay

Engineer SC : 2200-75-2800-EB-100-4000 (Total Rs. 3036.00)

Engineer SB : 2000-60-2300-EB-75-3200-100-3500 (Total Rs. 2810.00)

Higher starting salary in the scale in exceptional cases may be considered. Institute offers excellent career opportunities to result oriented staff. In addition to pay and allowances, perquisites like contributory provident fund, gratuity, contributory medical scheme, LTC, subsidised transport and canteen facilities are admissible as per Institute rules.

Age Limit : 35 years.

General Conditions : Out-station candidates called for interview will be paid to and fro second class rail fare by shortest route, on production of satisfactory proof of journey. Those who are interested may send their typed application on plain paper in the following format in English along with the recent passport size photograph, duly pasted on the application alongwith attested copies of certificates in support of educational qualifications, experience, duties performed and salary drawn etc.

(a) Post Applied for :, (b) Name (in block letters), (c) Place and Date of Birth, (d) Age, (e) Marital Status, (f) Present and Permanent Address, (g) Qualifications, starting from SSC onwards, indicating exam passed, year of passing, division, percentage of marks obtained, subject, board/university, (h) Experience, indicating nature of work in detail, name of the organization period, scale of pay and total salary drawn, (i) Signature with date, directly to Chief Administrative Officer, Institute for Plasma Research on the above address, **within 15 days** of the publication of this advertisement, superscribing the envelope with advt. No. and the post applied for. Candidates employed in Govt/Quasi Govt/Public Sector Undertaking should forward their application through proper channel. The IPR reserves the right to reject any application without assigning any reason. Incomplete applications are liable to be rejected. No interim correspondence will be enterained.

MINISTRY OF DEFENCE

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The DRDO undertakes research and development projects for upgrading the technology to meet the multitudinous requirements of fighting forces of the country. Excellent career opportunities affording a challenge and rewarding work experience in different streams of disciplines exist. There are about 40 laboratories/establishments located all over the country equipped with latest R & D facilities. Labs are located in Delhi, Bangalore, Hyderabad, Pune, Madras, Bombay, Dehradun, Cochin, Vishakhapatnam, Balasore etc.

Applications are inivited for the following positions :
Scientist 'F' (Rs. 5100-6300)— 2 Posts

Item No. 1 Defence Research Laboratory, Tejpur (Assam) - 1 Post

The Director is required to provide scientific leadership to the laboratory engaged in research, design and development activities connected with high altitude agri-horticulture, animal husbandry, forestry, entomology, utilization of non-conventional energy sources and allied subjects. The scientist is required to coordinate and integrate the scientific, technological and developmental efforts of lab and its detachments located in remote and forward areas of Arunachal Pradesh and West Bengal (160 m to 3200 m above MSL). The Scientist should have proven ability in one or more of above fields and be able to inspire team efforts through his leadership qualities. The scientist should be able to interact with Agricultural Research Institutions/Universities and other R&D institutions in the country and have aptitude to work amidst troops and tribals in the Himalayas.

Essential Qualifications: (i) At least second class Master's degree in Agriculture/Horticulture from a recognised university or equivalent. (ii) Ten years' research/design/development experience in the field of agriculture/horticulture/forestry in temperate climate in addition to knowledge of crops breeding, production/processing and utilisation of non-conventional energy sources, of which 2 years should be in a responsible capacity, to guide teamwork in the above-mentioned areas at high altitudes. **Desirable Qualifications**: Ph.D. in Agriculture/Horticulture with specialisation in Vegetable crops.

Item No. 2 (Naval Chemical and Metallurgical Laboratory, Bombay)- 1 Post

Essential Qualifications : (i) At least second class Master's degree in Chemistry/Polymer Chemistry/Biology or Bachelor's degree in Metallurgical Engg. from a recognised university or equivalent. (ii) Ten years' research/design/development experience with proven R&D capabilities by way of patents/publications in reputed journals in one of the following areas, of which 2 years should be in the capacity of a senior scientist/R&D manager in a reputed research and development organisation: (a) In Electrochemistry with specific application in cathodic protection and electro-chemical techniques or in the area of fuel cells : OR (b) In polymer chemistry with emphasis on characterisation and technological application of special purpose polymers like graft co-polymers, IPN polymers etc. OR (c) In Marine Biology with special reference to growth of films and marine bio-corrosion of engineering materials; OR (d) In Physical/Mechanical metallurgy of steels, welding technology and corrosion of steels. **Desirable Qualifications**: Ph.D. in Chemistry/Polymer Chemistry/Biology or Master's degree in Metallurgical Engg.

Scientist 'D' - (Rs. 3700-5000/-) - 1 Post

Item No. 3 - (Defence Research & Development Laboratory, Hyderabad)- 1 Post

Essential Qualifications : (i) At least second class Bachelor's degree in Electronics/Electronics and Telecommunications/Computer Science/Electrical Engg. from a recognised university or equivalent. (ii) Eight years' research and development experience related to the design and development of computer hardware, digital systems, microprocessor-based systems and the development of software networking and data communications. **Desirable Qualifications :** Master's degree in Electronics/Electronics and Telecommunications/Computer Science/Electrical Engineering from a recognised university or equivalent.

Scientist - C (Rs. 3000-4500) - 11 Posts

Item No. 4 - (Defence Research and Development Laboratory, Hyderabad - 1 Post

Essential Qualifications : (i) At leas second class Bachelor's degree in Mechanical/Aeronautical Engineering or Master's Degree in Physics from a recognised University or equivalent. (ii) Four years research/design/development experience of Non destructive testing of composite materials by X-Ray Radiography and Ultrasonic techniques. **Desirable Qualifications**; Master's degree in Mechanical/Aeronautical Engineering or Ph.D. degree in Physics.

Item No. 5 - Computer Engg. (Defence Research and Development Laboratory, Hyderabad) - 3 Posts.

Essential Qualifications : (i) At least second class Bachelor's degree in Electionics/Electronics and Telecommunications/Computer Science/Electrical Engg. from a recognised university or equivalent. (ii) Four years' research experience in the design and development of Computer Hardware, digital systems, microprocessor based systems with knowledge of multiprocessor systems, Computer networking and data communications. **Desirable Qualifications :** (i) Master's degree in Electronics/Electronics and Telecommunications/Computer Science/Electrical Engg.

Item No. 6 - Electronics Engg. (Defence Research and Development Laboratory, Hyderabad) - 2 Posts.

Essential Qualifications : (i) At least second class Bachelor's degree in Electronics/Electronics and Telecommunication/Computer Science/Electrical Engg. from a recognised university or equivalent. (ii) Four years' research experience in the design and development of systems software for mainframe or microprocessor based systems. **Desirable Qualifications :** (i) Master's degree in Computer Science/Electronics/Electronics and Telecommunications/Electrical Engg. (ii) Knowledge of UNIX operating system and compiler design :

Item No. 7 - Electrical Engg. (Interim Test Range, Balasore) - 1 Post.

Essential Qualifications : (i) At least second class Bachelor's degree in Electrical Engg. from a recognised university or equivalent. (ii) Four years' research, design and development experience in electrical cable laying and terminal box design with cable jointing using heat shrink techniques and other related latest technologies. **Desirable Qualifications :** (i) Master's degree in Electrical Engg. (ii) Knowledge of cable test equipment and fault finding.

Item No. 8 - Physics - (Defence Science Centre, Delhi) - 1 Post

Essential Qualifications : (i) At least second class Master's degree in Physics from a recognised university or equivalent. (ii) Four years' research/design/development experience in the area of lasers of which one year must be in laser spectroscopy. **Desirable Qualifications :** Ph.D. in Physics/Lasers.

Item No. 9 - Radiation Medicine - (Defence Laboratory, Jodhpur) - 1 Post

Essential Qualifications : (i) MBBS degree - a medical qualification included in the First Schedule or the Second Schedule or Part II of the Third Schedule to the Indian Medical Council Act 1956 (102 of 1956). Holders of Medical qualifications included in Part II of the said Third Schedule should also fulfil the conditions specified in sub-section (3) of Section 13 of the said Act. (ii) Diploma in Radiation Medicine. (iii) Three years' practical experience in radiation medicine or radioisotopic applications.

Item No. 10 - Mechanical/Metallurgical Engg. (Naval Chemical and Metallurgical Laboratory, Bombay) - 1 Post

Essential Qualifications : (i) At least second class Bachelor's degree in Mechanical/Metallurgical Engg. from a recognised university or equivalent. (ii) Four years' research and development experience in the areas of solidification, structure-property correlation in cast irons and in the use of sophisticated equipment for micro-structural evaluation. **Desirable Qualifications :** (i) Master's or Ph.D. degree in Metallurgy/Mechanical Engg., (ii) Some published work in reputed journals in the above areas.

Item No. 11 - Metallurgical Engg. - (Naval Chemical and Metallurgical Laboratory, Bombay) - 1 Post

Essential Qualifications : (i) At least second class Bachelor's degree in Metallurgical Engg. from a recognised university or equivalent, (ii) Four years' research and development experience in the areas of phase diagrams, thermodynamics, heat treatment of steels and computer applications in Metallurgy.

Desirable Qualifications : (i) Master's or Ph.D. degree in Metallurgical Engg., (ii) Some published work in reputed journals in the above areas.

Scientist 'B' - (Rs. 2200-4000)—1 Post

Item No. 12. Physical Chemistry - (Interim Test Range, Balasore) - 1 Post (UR)

Essential Qualifications: At least second class Master's degree in Physical Chemistry from a recognised university or equivalent. **Desirable Qualifications :** (i) Ph.D. degree in Physical Chemistry, (ii) Experience in handling/development of software for instrumentations.

GENERAL CONDITIONS

1. Promotion Prospects : DRDO offers excellent opportunities for career advancement as Scientists. Result-oriented motivated scientists can look forward to promotions to following grades of scientists :

(i) Scientists 'D' : Rs. 3000-4500, (ii) Scientist 'D' : Rs. 3700-5000, (iii) Scientist 'E' : Rs. 4500-5700, (iv) Scientist 'F' : Rs. 5100-6300, Scientist 'G' : Rs. 5900-7300.

2. Age Limits : (i) For Scientist 'B' : Not exceeding 28 years. (ii) For Scientist 'C' not exceeding 35 years, (iii) For Scientist 'D' not exceeding 45 years, (iv) For Scientist 'F' not exceeding 45 years. Age is relaxable by 5 years in case of Govt. servants and those belonging to Scheduled Caste and Scheduled Tribes communities. Crucial date for determining age is 21 March 1988.

3. Method of applying: Neatly type-written applications should be sent to Director, Recruitment & Assessment Centre, Lucknow Road, Timarpur, Delhi-110 007, preferably by Registered cover, superscribed "Application for the post of Scientist—" "Item No.—" on plain paper in the prescribed format (reproduced below) accompanied by a crossed non-refundable Postal Order of the value of Rs. 8/- drawn in favour of Senior Accounts Officer, Recruitment & Assessment Centre, DRDO, payable at New Delhi. There is no fee for SC/ST candidates. Last date of receipt of applications is **21 March 1988.** In respect of candidates from Andaman & Nicobar Islands, Lakshadweep and abroad, last date of receipt of applications **7 April 1988.**

4. Method of Selection : A written test may be conducted for certain posts at selected places. No TA/DA would be admissible for this purpose. Persons called for interview would be reimbursed actual train/bus fare by shortest route limited to second class rail fare from the normal place of residence to the place of interview.

5. Only Indian nationals need apply.

6. Candidates should send two self-addressed unstamped envelopes of 23 x 10 cms alongwith the application.

7. One copy of recent passport size photograph should be pasted on right hand corner of the first page of application.

8. Attested copies of certificates/testimonials should be attached to the application form. Self attested copies will be accepted. NO ORIGINALS SHOULD BE FORWARDED.

9. Candidates will have to produce original certificates at the time of interview.

10. Incomplete applications or those received late will be rejected and no correspondence would be entertained in this regard.

11. In case SC/ST candidates are not available in requisite number, general candidates will be considered for the posts reserved for SC/ST.

12. Candidates Working in Government/Public Sector Undertakings/Autonomous Organisations must apply through proper Channel. They shall not be interviewed if they fail to produce 'No Objection' Certificate from their employer at the time of interview.

13. Prescribed essential qualifications are the barest minimum and mere possession of the same does not entitle any candidate to be called for interview.

14. Candidates desirous of applying for more than one post may apply separately for posts indicating Item No. of the posts.

15. Candidates on appointment will have the opportunity to carry out Ph.D. with external registration and may be sponsored for doing M. Tech.

16. Opportunities are also available for study leave for carrying out higher studies abroad.

17. DRDS Officers may be sponsored for training abroad.

18. Though initial place of posting is indicated against some of the posts, yet candidates have the liability to serve anywhere in India.

19. Handwritten applications will not be entertained.

20. Number of posts against each item is tentative and may vary.

21. All extra sheets used by the candidates MUST be duly authenticated by them.

22. Knowledge of French, German, Russian, Japanese and Chinese is a desirable qualification for all posts.

CANVASSING IN ANY FORM WILL MEAN DISQUALIFICATION

APPLICATION FORMAT

Application for the post of Scientist ____________, Item No. ____________________

Affix passport size latest photograph

1. Advertisement No :
2. Item No. :
3. Details of Postal Order (s) No., Date and Amount :
4. Name in full (Shri/Smt/Km) (in block letters)
5. (a) Date of Birth :
   (In Christian era in figures)
   (b) Age as on 21 March 1988 :
6. Nationality :
7. Marital Status :
8. Father's/Husband's Name :
9. (a) Address for Correspondence :
   (b) Permanent Address :
   (in block letters with Pin Code)
10. Nearest Railway Station :
11. Whether belong to SC/ST :
    (If yes, attach Certificate)
12. Educational Qualifications :

Sl. No.	* Course Passed	University/ Institution/ Board	Year of Passing	Subject taken	Percentage of marks

* In Chronological order from X standard (SSLC/HS/HSC) onward.

13. Professional Training :

Organisation	Period From	Period To	Details of Training

14. Employment Record :

Name & address of the employer/ institution	Period of service from to	Designation of the post held	Scale of pay of each post	Detailed description of work	Reason for leaving

15. Present basic pay :
    Other allowances :
    Total emoluments :
16. (a) Are you a Govt. Servant :
    (b) If yes, whether Central/State/UT Govt.
    (c) If not, whether employed in undertaking/autonomous body under Central/State Govt.
17. Minimum joining time required :

18. Resume of research work/experience, if any :
19. Number of papers published (enclose list) :
20. Field of special interest :
21. Are you under any contractual obligation to serve Central/State Govt./Any other public sector undertaking or Autonomous body and if so the details :
22. Details of relatives employed in DRDO :

Name of Relative	Relationship	Lab/Estt in which employed	Post held

23. Have you applied for any post in DRDO during the past two years? If yes, give particulars :

Sl. No.	No. and Date of Advt.	Name of Post/ Discipline	Date of interview	Remarks

24. Any other information you may wish to add :
(use separate sheet if necessary),
25. Declaration :

I declare that the foregoing information is correct and complete to the best of my knowledge and belief and nothing has been concealed/distored. If at any time, I am found to have concealed/distorted any material information, my appointment shall be liable to summary termination without notice/compensation. I will, if and when required, take up duty in the discharge of government assignments anywhere in India.

Place **Signature of Candidate**
Date

davp 87/607

INSTITUTE FOR PLASMA RESEARCH

(An Autonomous Institute of Dept. of Science & Technology)

Government of India

Near Indira Bridge, Gandhinagar Highway
BHAT, GANDHINAGAR—382 424

ADVT. No. 01/88

The Institute for Plasma Research is an autonomous Institute of the Department of Science and Technology, Government of India. Its primary objective is to conduct research in Plasma Physics and related areas. Plasma Physics has been identified as a thrust area by the Department of Science and Technology, requiring intensification of research. IPR offers the following research programmes for bright and motivated young candidates.

SUMMER PROGRAMME

Students of M. Sc. (Physics) who have completed their first year of study are eligible to apply for this programme. Selected candidates will be provided the opportunity to interact actively with scientists of IPR in the frontier research areas of Plasma Physics for six weeks from May 23—July 1, 1988. The participants will receive a consolidated stipend of Rs. 750/- payable in three fortnightly instalments of Rs. 250/- each for six weeks, to and fro second class rail fare by shortest route and free hostel accommodation. Deadline for applications is **April 10, 1988**.

Ph.D. PROGRAMME

The basic entry requirement for the Ph.D. programme is M.Sc. in Physics and those appearing in the final examination are also eligible to apply. Selection will be on the basis of personal interview at the Institute and the travel expenses for the same by second class to & fro rail fare by shortest route will be provided. The selected candidates will undergo requisite course work, mainly during the first year. The scholarship is Rs. 1400/- p.m. during the first two years. Subject to evaluation it may be increased to Rs. 1500/- p m. in the next two years and Rs. 1600/- p m. for the fifth year. Normally the Ph.D. Programme is for 5 years and on its successful completion a few candidates with exceptional skills and talent may be offered regular positions in the Institute. Deadline for applications is **April 10, 1988**.

Applications for these programmes should include a detailed resume specifying name, date of birth, address (Present and Permanent), academic record (school leaving onward, including rank); and two letters of reference from their teachers. Applications should be sent to the Chief Administrative Officer at the above address superscribing the envelope the Advt. No. and the programme applied for.

Embassy of the Republic of Iraq

VACANCIES IN THE UNIVERSITY OF MOSUL, MOSUL-IRAQ

The Embassy of the Republic of Iraq, Cultural Office, 169 Jor Bagh, New Delhi—3, has the honour to invite applications from prospective candidates for its University of Mosul, Mosul Iraq, for the year 1988-89. The candidates are advised to register themselves with the Ministry of Personnel and Training, Foreign Assignment Section, North Block, New Delhi, if already not done :

Architecture

Qualification Required : M. Arch. with 5 years of exp.

1. Residential Buildings
2. Construction Buildings
3. City Planning
4. Theory & History of Architecture
5. Industrial Buildings
6. Sports Buildings
7. Interior Design
8. Landscape Design
9. Transportation Buildings

Computer Science

Qualification Required : Ph.D. with 5 years of exp.

1. System Software
2. Computer Architecture
3. Operating System
4. Telecommunications & Computer Networks
5. Computer Science (Graphics)
6. Data Structures & Algorithms
7. System Analysis & Design
8. Data Bases
9. Computer Languages

Medical (Dental)

Qualification Required : M.D./M.S. with 5 years of exp.

1. Crown Bridge
2. Prosthodontics-Partial and complete Dentures
3. Fixed and Removable Prosthodontics
4. Periodontology
5. Oral Pathology
6. Oral Surgery
7. Oral Medicine
8. Dental X-Ray
9. Endo-Dontic
10. Maxillo Facial Surgery

TERMS AND CONDITIONS

1. A holder of M.D./M.S./Ph.D. will be granted a montly salary of I.D. 400/- plus I.D. 10/- for each year of experience after the above stated degrees.
2. A holder of M.A./M.Sc. will be given a monthly salary of I.D. 300/- plus I.D. 10/- for each year of experience.

NOTE : 1 I.D.=US$ 3.2

3. Accommodation allowance is I.D. 150/- for married and I.D. 60/- for single.
4. Air tickets will be provided for self, wife and two children below the age of 18 years, at the time of joining and on the expiry of the assignment.
5. Full protection is ensured as per the Iraqi laws.
6. Initially the period of contract is one academic year and likely to be extended on mutual consent.
7. The relevant institution/university undertake to pay the medical fees of the foreigners and their family members in public hospitals.
8. Annual leave is 45 days in general.
9. No income tax is payable on the salary.
10. Remittance allowed is 40%.

Postgraduate Institute of Medical Education & Research

CHANDIGARH-160012

Admission Notice No. 1/88

CLOSING DATE FOR THE RECEIPT OF APPLICATIONS IS 30th MARCH, 1988

Applications on prescribed form are invited for the following postgraduate/post-doctoral courses etc. for the academic session starting from first July, 1988 :

I. First Year Junior Residents (for MD/MS Courses) in the following Subjects

(a) **Clinical Group—40**
Anaesthesia(10), Dermatology(2), ENT(3), Medicine(8), Obst. & Gynae(3), Paediatrics(3), Psychiatry(1), Ophthalmology(2), Radio-diagnosis(2), Surgery(6).

(b) **Para Clinical Group—9**
Microbiology(1), Pathology(4), Pharmacology(4)

(i) Those completing their internship afrer 30.6.88 are not eligible.

(ii) Candidates can apply for a maximum of two subjects in clinical group. They can apply for all the subjects in para clinical group. However, only one application needs to be submitted. The choice of subjects may be indicated in the relevant column of the application. Application fee is Rs. 30/- per subject.

(iii) 22½% of the seats in each of the above mentioned groups are reserved for candidates belonging to Sch. Castes/Tribes. In addition, 5% seats are reserved for candidates who have served or are serving or have carried on private practice in rural areas for a minimum period of two years.

(iv) A limited number of sponsored/deputed candidates may also be accepted for the courses mentioned above and also for Orthopaedic Surgery & Radio-therapy.

II. Senior Residents—15 (for DM/M.Ch. Courses) in the following Subject :

D.M.		M.Ch.	
Cardiology	—2	Cardiovascular Thoracic Surgery	—2
Clinical Pharmacology	—2	Neuro-Surgery	—2
Endocrinology	—1	Paediatric Surgery	—2
Neurology	—3	Urology	—1

(i) One post each in the subjects of Cardiology, Neurology, Cardiovascular & Thoracic Surgery and Paediatric Surgery is reserved for candidates belonging to Sch. Castes/Tribes.

(ii) A limited number (1—2) of sponsored/deputed candidates may also be accepted in all the subjects mentioned above as also for DM course in Gastroenterology and M.Ch. course in Plastic Surgery. No seat for sponsored/deputed candidates will however, be available for D.M. course in Cardiology and M. Ch. courses in Neuro Surgery and Paediatric Surgery.

(iii) Upper age limit on 1.6.1988—Not more than 35 years for general candidates and 40 years for candidates belonging to Sch.Castes/Tribes and for ex-servicemen and commissioned officers including E.C.O./S.S.C.O.'s, who have rendered atleast 5 years military service and have been released on satisfactory completion of assignment (including those whose assignment is due to be completed within 6 months). No upper age limit restriction for deputed/sponsored candidates.

(iv) Candidates due to appear in MD/MS examinations during April-May, 1988 can also apply. If otherwise found eligible they will be admitted to the entrance test only if they supply the result of their examination from the University concerned atleast a day before the entrance test.

III. Ph.D. Programme

Vacancies exist in the following departments :
Anaesthesia, Biochemistry, Biophysics, Expt. Medicine, ENT, Haematology, Immunopathology, Microbiology, Morbid Anatomy, Obst. & Gynae., Psychiatry including Clinical Psychology, Parasitology, Pharmacology and Virology.

IV. Second Year Junior Residents—2 for M.D.S. Part I course in the speciality of Pedodontia and Preventive Dentistry. One post is reserved for candidates belonging to Sch. Castes/Tribes.

V. Diploma in Immunohaematology & Blood Transfusion.

VI. M Sc Medical Technology (Pathology) with Cytology or Haematology or Immunopathology or Morbid Anatomy as a special subject.

VII. MSc. Medical Technology (Microbiology) with Bacteriology or Parasitology or Virology as a special subject.

VIII. M.Sc. Medical Technology (Radiology) with Radio-Diagnosis or Radiotherapy as a special subject.

IX. M.Sc. Medical Technology (Biochemistry).

X. First Year Junior Residents—2 (One reserved for Scheduled Castes/Tribes) for the department of Dentistry for a period of 6 months. Those who have already completed or will complete First Year Junior Residency or House Job for one year by 31.7.88 are not eligible.

General Information

1. Candidates other than those belonging to Sch. Castes/Tribes having more than one failure during MBBS (for category I) and BDS (for categories IV and X) course are not eligible. Sch. Castes/Tribes candidates with upto two failures in their MBBS/BDS career will be eligible.
2. Those applying for the reserved seats must append, with their applications, a certificate from the District Magistrate concerned in support of their claim. No other certificate will be entertained.
3. For courses at categories V to IX above only sponsored/deputed candidates will be considered for admission.
4. The courses at categories IV and V are under the Panjab University.
5. The number of vacancies indidated in categories I, II, IV and X is provisional and is subject to change without prior notice.
6. The application must be accompanied with non refundable fee of Rs. 30/- in the form of postal order drawn in favour of the Director for each of the courses mentioned above. A candidate applying for more than one subject/course is required to submit separate application, complete in all respect for each subject/course, except for category No. 1.
7. Application form and detailed information are available from the office of the undersigned either personally on payment of Rs. 5/- at the counter from 11 A.M. to 12 Noon and 3 P.M. to 4 P.M. on all working days or by post for which the request must be accompanied with a self addressed envelope size (23 x 10 cms.) bearing postage stamps of Rs. 3.40 and crossed postal order for Rs. 5/- drawn in favour of the Director.

REGISTRAR

Council of Scientific & Industrial Research

ADVERTISEMENT No. 2/88

The CSIR is seeking to appoint a Scientist-F for its National Chemical Laboratory, Pune. The NCL is situated on a 479 acres campus on the southern part of Pune. It has excellent laboratory and pilot facilities. The Institute has an annual budget of about Rs. 11 crore, S & T staff of over 1150 of whom around one-third are scientists. The present R & D programmes of NCL are broadly in the areas of Inorganic, Organic and Physical Chemistry, Catalysis & Catalysts, Polymer Chemistry and Engineering Process Development, Biological Sciences, etc.

The Scientist will serve as the Head of one of the Organic Chemistry Groups and would be responsible among other for :

—developing the Group into a national S & T resource,

—providing scientific leadership to the diverse R & D sub-groups in the areas of synthetic, organic, heterocyclic chemistry and in chemistry of pesticides, drugs, etc.

—promoting interlaboratory and interagency R & D programmes,

—negotiating and acquiring R & D grants/contracts,

—man-management.

The candidate must be a doctorate in chemistry/chemical engg., creative, innovative and well established scientist/technologist preferably below 50 years of age. He should have a broad scientific and technical vision, a demonstrated ability to create an environment conducive to nurturing a high-class R & D; a proven record of inter-personal skills and an ability to communicate effectively.

This is a contractual appointment for a period of six years in the scale of pay of Rs. 5100-150-5700-200-6300 plus allowances as admissible. Consultancy is permitted with a ceiling on annual remuneration receivable at Rs. 15000; the ceiling is likely to be revised upwards. Residential accommodation would be provided on payment of prescribed licencce fee.

A duly constituted Screening Committee will decide on the number of Scientists to be invited to meet the full Selection Committee. The decision of the Council in this behalf will be final. Applications from employees working in Govt. Departments, Public Sector Organisations and Govt. funded research agencies will be considered only if forwarded through proper channel and with a clear certificate that the applicant will be relieved within three months of receipt of the appointment orders.

Standard proforma for submitting the curriculum vitae and the literature about the laboratory can be had, on request, from the Joint Secretary (Administration), CSIR, Rafi Marg, New Delhi-1. The last date for receipt of curriculum vitae is **30th April, 1988**. Further information, if required, can be had from the Director, National Chemical Laboratory, Pune-411008.

CLASSIFIED ADVERTISEMENTS

UNIVERSITY OF BOMBAY

DEPARTMENT OF CHEMICAL TECHNOLOGY, MATUNGA ROAD, BOMBAY 400 019, INDIA

Applications are invited in the prescribed form for the following posts in the University Department of Chemical Technology :

Sr. No.	Designation of the Post	No. of Posts	Post reserved for (SC/ST and NT)	Open Category
1.	Professor of Chemical Engineering	1	—	1
2.	Professor of Medicinal Chemistry	1	—	1
3.	Professor of Engineering	1	—	1
4.	Reader in Biochemical Engineering	± 1	—	1
5.	Reader in Microbiology	± 1	—	1
6.	Reader in Pharmacy	1	—	1
7.	Reader in General Engineering	1	—	1
8.	Lecturer in Technology of Paints and Varnishes	1	—	1
9.	Lecturer in Pharmacognosy	1	—	1
10.	Lecturer in Textile Chemistry	1	—	1
11.	Lecturer in (General) Engineering	1	—	1
12.	Reader in Mathematics	1	—	1
13.	Lecturer in Mathematics	1	*1	—
14.	Lecturer in Colour Physics	†1	—	1

The Pay-Scales of the posts are as follows :

Professor : Rs. 1500 60-1800-100-2000-125/2-2500;

Reader : Rs. 1200-50-1300-60-1900;

Lecturer : Rs. 700-40-1100-50-1600.

In addition to pay, Dearness Allowance, House Rent Allowance and Compensatory Local Allowance will be paid according to the University rules. The total emoluments at the minimum of the respective pay-scales at the current rates of allowances are as follows :

Professor : Rs. 3508.35
Reader : Rs. 3158.35
Lecturer : Rs. 2243.00

A higher starting pay may be given to persons appointed to the posts of Professor and Reader in special cases. All posts carry the retirement benefits according to the existing rules of the University. Teachers of the University are permitted to take up outside work according to the University rules. The appointments to the posts, except otherwise stated, will be made on probation for two years but the probationary period may be reduced by the Executive Council in special cases. Candidates belonging to the Scheduled Castes, Scheduled Tribes, Denotified Tribes and Nomadic Tribes so notified for the state of Maharashtra will alone be considered for the reserved posts. If suitable candidates from the Backward Classes are not available, other candidates will be considered for appointment on purely temporary basis. Candidates only from Backward Classes should apply for the posts at serial number 13.

The minimum qualifications prescribed for the posts at serial numbers 1 to 11 are as under :

Professor

An eminent scholar with published work of high quality, actively engaged in research. Ten year's experience of teaching and / or research. Experience of guiding research at doctoral level.

Or

An outstanding Engineer/Technologist with established reputation who has made significant contribution to knowledge.

Reader

Good academic record with a Doctor's degree in a relevant field. About five year's experience of teaching and/or research and development.

Provided further that candidates not possessing a Doctor's degree may be considered if they have to their credit equivalent research published work or design/development work of high order either in the institution or in an Industry.

Or

In the case of persons to be recruited from Industry or professional field candidates should possess good academic record with recognised professional work of about seven years which should include innovation and/or research and development.

Lecturer

(a) Master's degree in appropriate field in Engineering/Technology, (b) Consistently good academic record with a Bachelor's degree in Engineering/Technology. First Class at Bachelor's degree and/or Master's degree level, (c) One year's relevant professional experience outside/academic/research Institutions.

Having regard to the requirements of emerging fields of Engineering and or developing inter disciplinary programmes, the requirements of Engineering/Technology degrees may be waived in the cases of otherwise well qualified candidates.

Provided further that if a candidate does not possess professional experience or a person possessing such experience is not found suitable, the person appointed will be required to obtain desired professional experience within a period of five years of his appointment, failing which, he will not be able to earn future increments until he fulfils this requirement.

The minimum qualifications prescribed for the posts at serial number 12 to 14 are as under :

Reader

Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.

About five year's experience of teaching and/or research provided that at least three of these years were as Lecturer or in an equivalent position. This condition may be relaxed in the case of candidates with outstanding record or teaching/research.

Lecturer

(a) A Doctor's degree or research work of an equally high standard, and

(b) Good academic record with at least second class (C in the seven-point scale) Master's degree in a relevant subject from an Indian University or an equivalent degree from a foreign University.

Having regard to the need for developing interdisciplinary programmes, the degrees in (a) and (b) above may be in relevant subjects.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, candidate possessing a good academic record (weightage being given to M. Phil. or equivalent degree or research work of quality) may be appointed provided he has done research work for atleast two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research of high standard within eight years of his appointment, failing which, he will not be able to earn future increments until he fulfils these requirements.

The additional qualifications prescribed for the posts are as under :

1. Professor of Chemical Engineering: Expertise in the area of Separation processes, Reaction Engineering, Non-Newtonian Technology, Computer Aided Design will be considered as additional qualifications. The incumbent should have had live contacts with Industry as would be evident from consultation experience.

2. Professor of Medicinal Chemistry : Research experience in one or more of the following is essential—drug synthesis mechanism of action of drugs. Chemistry of natural products, bio-organic chemistry. Industrial Experience as evident from consultation desirable.

3. Professor of Engineering : should be actively engaged in research in any branch of Engineering with minimum of five years experience of teaching at graduate and post-graduate level in the fields of design of Chemical equipment, Plant design/plant maintenance. Experience in the area of management of workshop and repairs and maintenance of equipment and machine is desirable.

4. Reader in Biochemical Engineering : Basic degree in first class in Chemical Technology / Biochemical Engineering/Chemical Engineering and Doctorate in the respective field, Extensive teaching and research/industrial experience in Fermentation Technology/ Industrial Microbiology desirable. Experience of guiding research students in any of these fields essential. Publications in journals of standing.

5. Reader in Microbiology : Doctorate in Chemical Technology or Microbiology, with extensive teaching and research experience in Food Microbiology/Applied Microbiology with special orientation of Food / Fermentation/ Pharmaceutical Industry. Experience of guiding research students in any of these fields desirable. Publications in journals of standing.

6. Reader in Pharmacy : M.Pharm. or B.Sc. (Tech.) (Pharma.) followed by the Doctor's degree or equivalent research published work or design/ development work or professional work must be in the field of Pharmaceutics or Industrial Pharmacy or Bio-Pharmaceutics.

7. Reader in General Engineering : Desirable : Post-graduate qualification in Electrical Engineering with 7 years experience in Teaching / Research / Professional work.

8. Lecturer in Technology of Paints and Varnishes :

9. Lecturer in Pharmacognosy : M.Pharm. degree with specialisation in Pharmacognosy or Medicinal Natural Products. **Desirable :** Aptitute for research in Natural Products.

10. Lecturer in Textile Chemistry : Research work in the field of Fibre Chemistry, structure or physio-chemical aspect of finishing. Some Industrial experience desirable.

11. Lecturer in (General) Engineering : Master's degree in Mechanical/ Electrical Electronic Engineering. Experience in workshop and Laboratory activities/maintenance areas will be preferred.

Reader in Mathematics : The candidate should possess Ph.D. in Applied Mathematics with specialisation in Mechanics of Solids and Fluids, MHD of a recognised University. He should have research papers published in the journals of repute, experience of guiding research at Doctorate level will be additional qualification. He should also help research activities in solving pure and applied Mahthematical problems of Technology students. He should have 7/8 years experience of teaching Mathematics, statistics, Numerical analysis etc. to Engineering and Technology students.

13. Lecturer in Mathematics : The candidates should possess M.Sc., M.Phil. in Applied Mathematics, Fluid Mechanics and/or similar field of specialisation of a recognised University. He should have 4/5 years experience of teaching pure and applied Mathematics, Statistics Numerical Analysis to Engineering students of degree level.

14. Lecturer in Colour Physics : A least two years post Doctoral experience in one or more of the following areas 1. Electro Microscopy/X-rays; 2. Polymer Physics; 3. Solid State Physics; 4 Spectroscopy/Colour Measurements.

Explanation: (1) For determining "good academic record" the following criteria shall be adopted :

(i) A candidate holding a Ph.D. degree should possess at least a second class Master's Degree or must have passed Semester I and II examinations of M.Chem. Engg. / M.Sc. (Tech.) / M.Pharm. degree and completed at least two terms of attendance after his registration for the Master's Degree and have been permitted to change his registration to the degree of Ph.D. in Technology under the relevant regulation.

(ii) A candidate without a Ph.D. degree should possess a high second class Master's Degree and second class in the Bachelor's degree; or

(iii) A candidate not possessing a Ph.D. degree but possessing a second class Master's Degree should have obtained first class in the Bachelor's Degree.

(2) Candidates having secured marks more than the mid-point of the prescribed minimum marks for passing an examination in the second class and the prescribed minimum marks for passing an examination in the first class by a University shall be deemed to have passed that examination in the high second class.

The qualification regarding experience is relaxable at the discretion of the Executive Council on the recommendation of the Selection Committee in the case of candidates belonging to the Scheduled Castes, Scheduled Tribes, Denotified Tribes and Nomadic Tribes.

Eight copies of the application in the precribed form, together with copies of certificates and the prescribed fee, should be sent in an envelope subscribed with "Application for the post of........." so as to reach the Director, Department of Chemical Technology, Matunga, Bombay-400 019 on or before Monday, the 28th March, 1988. Candidates from abroad, Andaman and Nicobar Island and Lakshadweep may send their applications so as to reach the Director on or before Monday, the 11th April, 1988. Candidates who are already employed shall send their applications through proper channel. Incomplete and applications on plain paper will not be considered. Canvassing, direct or indirect, will be a dis-qualification.

A set of prescribed forms of eight application can be had at the counter of the Department on payment of Rs. 10/- in cash.

Request for supply of a set of eight prescribed forms by post should be made sufficiently in advance with self-addressed stamped (Rs. 3.80) envelope of the size of 27 x 12 cms. and Crossed Indian Postal Order or a Crossed Demand Draft on Scheduled Bank for Rs. 10/- drawn in favour of "the Director, U.D.C.T., Matunga, Bombay - 400 019 payable at Bombay".

Note : *The post is reserved for candidates belonging to backward classes and is being advertised for the second time.

†The posts are permanent. However, appointment are to be made on a temporary basis and are likely to be made permanent.

S.P. Potnis
DIRECTOR

UNIVERSITY OF NORTH BENGAL

F. 22/Advt./Estt./10/R-88

Dated : 19-2-1988

Applications in prescribed forms are invited from Indian Citizens for the following posts :

1. **Reader in History** (Specialisation : Modern Indian History) : Post one

2. **Reader in Commerce** (Specialisation : Personnel Management/Banking —Lien bound but likely to be made permanent) : Post one

3. **Reader at the Centre for Himalayan Studies** (Specialisation in any of the following branches : Sociology & Social Anthropology, Geography & Applied Geography, Political Science, Economics, International Relations, Linguistics, History). The candidates should preferably have experience of inter-disciplinary research and should preferably be conversant with the languages of the Eastern Himalayan Region. (Post one)

4. **Reader in Computer Science :** Post one (Reserved for S.C.)

Essential Qualification : (i) M. Tech. In Computer Science/Radiophysics and Electronics / Applied Physics or an equivalent Degree, or M.Sc. in Physics/ Mathematics or in a relevant/related subject or an equivalent degree of a foreign University with consistently good academic records. (ii) Adequate experience in developing systems software, (iii) Knowledge of Fortran, Assembly language, PASCAL/ALGOL and COBOL/BASIC, (iv) for the post of Reader, ability to guide research workers and to carry out research and development projects.

5. **Lecturer in Economics** (Specialisation : Demography/Statistics/Theoretical Economics or M. Stat. with specialisation in Demography) : Post one

Scales of Pay : Reader : Rs. 1200-1900/- and Lecturer : Rs. 700-1600/- respectively with other allowances and benefits as per University rules.

Qualifications : For Readers and Lecturer as prescribed by the University Grants Commission. Details of qualifications for Readers and Lecturer as may be obtained with application forms.

Choice of selection committee may not necessarily be confined to those who apply formally. No application except in prescribed application forms will be considered.

Prescribed application forms may be obtained from the office of the Registrar personally on payment of Rs. 5/- (Rs. 3/- for S.C./S.T.) in cash at the University Cash Counter or by sending a self-addressed envelope of 25 x 13 cms. affixed with stamps worth Rs. 3/- accompanied by crossed I.P.O./Bank Draft of Rs. 5/- (Rs. 3/- for S.C./S.T.) in favour of the University of North Bengal. Filled-in application forms (7 copies) along with one self addressed unstamped envelope must reach the office of the Registrar, P.O. North Bengal University, Dt. Darjeeling, Pin : 734430 on or before **8-4-1988**.

REGISTRAR

CENTRAL BUILDING RESEARCH INSTITUTE

ROORKEE (U.P.) 247 667

Advertisement No. 1/88

Applications are invited on the prescribed form for the following posts :

1. **Scientist 'B'—1 Post** (Architecture) Rs. 2200-75-2800-EB-100-4000 (Total Emoluments Rs. 2706.00)

Qualifications

Essential : Ist Class B.Arch. Degree or equivalent from a recognised University/Institute.

Desirable : One year experience of architectural designing, preferably with help of Computer graphics, in an organisation of repute.

Job requirement : The candidate will be required to work on research studies in the field of architecture and on the design of buildings of various types.

2. **Scientist 'B'—1 Post** (Chemistry) Rs. 2200-75-2800-EB-100-4000 (Total Emoluments Rs. 2706.00)

Qualifications

Essential : Ph.D. or 1st class degree of Master of Science in Analytical/Inorganic Chemistry from a recognised University/Institution.

Desirable : 3 years experience of research and/or teaching on environmental pollution monitoring techniques. Experience / training in the field of modern analytical instrumentation would be an asset.

Job requirement : The selected candidate will be required to study the pollution emissions from industries and their impact on building materials and suggest remedial measures.

3. **Scientist 'B'—1 Post** (Civil Engineering) Rs. 2200-75-2800-EB-100-4000 (Total Emoluments Rs. 2706.00)

Qualifications

Essential : 1st class B.E./B.Tech. in Civil Engg. from a recognised University.

Desirable : One year experience in design office or construction field with a reputed organisation.

Job requirement : The selected candidate will be required to work on R & D and sponsored projects involving structural designing of buildings and/or construction management.

4. **Scientist 'B'—1 Post** (Chemistry/Material Science) Rs. 2200-75-2800-EB-100-4000 (Total Emoluments Rs. 2706.00)

Qualifications

Essential : 1st class Degree of Master of Science/Technology in Chemistry or in Material Science from a recognised University/Institute etc.

Desirable : Brilliant academic record wito 1-2 years research experience in Organic Building Materials such as Plastics, IPN Polymeric Systems, Coatings and sealants etc.

Job requirement : The selected candidate will be required to carry out R&D work on IPN polymerio systems, coatings, testing and evaluation and durability of plastics and polymer products with special reference to their applications in buildings.

5. **Scientist 'B'—1 Post** (Fire) Rs. 2200-75-2800-EB-100-4000 (Total Emoluments Rs. 2706.00)

Qualifications

Essential : Ph.D. or 1st class M.Sc. in Organic Chemistry or 1st class B.E. in Chemical Engineering from a recognised University/Institution.

Desirable ; One year experience in development of fire retardant materials.

Job requirements : The selected candidate will be required to work on development of fire retardant treatments for building materials, formulation of fire retardant paints, and development of related technology.

6. **Scientist 'B'—1 Post** (Civil Engineering) Rs. 2200-75-2800-EB-100-4000 (Total Emoluments Rs. 2706.00)

Qualifications

Essential : 1st class B.E./B.Tech. in Civil Engineering or equivalent from a recognised University or Institute.

Desirable : One year experience in R&D or testing with a reputed organisation.

Job requirements : The selected candidate will be required to work on R & D aspects of fire resistance of structural elements & post fire investigations of buildings and structures.

7. **Technical Officer 'A' —1 Post** (System Analyst) Rs. 2000-60-2300-EB-75-3200-100-3500 (Total Emoluments Rs. 2480.00).

Qualifications

Essential : Master's Degree in Mathematics/Physics from a recognised University with 2-4 years experience as a

With Best Compliments

From :

Phone No. : 228 38 76

LITRICO

LITRICO
1/7218, Shivaji Park
Shahdara, **DELHI-110032**

Suppliers of Back-Volumes of Journals, Serial Publications and Scientific and Technical Books.

Programmer/System Analyst or Bachelor's Degree in Mathematics with 5-8 years experience as Programmer/System Analyst.

Desirable : 1 year Diploma or Training in Computer Languages such as BASIC, FORTRAN, COBOL, DBMS from a recognised Institute/Training Centre.

Job requirement : The candidate will be required in making Computer Programs and Maintenance of data banks in the field of Project Cost Management and Project Cost Accounting, Pay Roll System and Inventory Control System.

8. Technical Officer 'A'—1 Post (Information) Rs. 2000-60-2300-EB-75-3200-100-3500 (Total Emoluments Rs. 2480 00)

Qualifications

Essential : B.E./B. Tech./B. Arch. in Civil Engineering or Architecture or equivalent with 2-4 years experience of writing and editing technical papers.

Desirable : Journalistic/editorial experience of technical publications and visual presentations. Good command over English language would be an asset.

Job requirement : The selected candidate will be required to take total responsibility of writing and editing and publishing technical papers/reports related to Institute's R & D activities. He may also be required to assist in preparation of audio-visual presentations on Institute's R & D.

9. Technical Asstt. Gr. VIII :—2 Posts (For Computer Centre) Rs. 1400-40-1800-EB-50-2300 (Total Emoluments Rs. 1707.00)

Qualifications

Essential : B.Sc. with Physics & Maths. or Diploma of 3 years duration in Civil Engineering or equivalent from a recognised Institute.

Desirable : Diploma in Computer Programming from a recognised Institution or two years experience in Computer Programming in high level languages at a reputed Computer Centre. Experience in Data Management, DBASE III/III plus and graphics languages would be an added advantage.

Job requirement : The selected candidates will be required to assist in development of Computer Programmes and Management of the Computer Centre at the Institute.

10. Technical Asstt. Gr. VIII—1 Post (Information) Rs. 1400-40-1800-EB-50-2300 (Total Emoluments Rs. 1707.00)

Qualifications

Essential : B.Sc. with Mathematics/Statistics from a recognised University/Institute.

Desirable : 1-2 years experience in Electronic Data Processing.

Job requirement : The selected candidate will be required to assist in creating and operating data base management system.

11. Technical Asstt. Gr. VIII—1 Post (Geotechnical) Rs. 1400-40-1800-EB-50-2300 (Total Emoluments Rs. 1707.00)

Qualifications

Essential : 3 years Diploma in Electronics/Electrical Engineering or equivalent from a recognised Institution.

Experience : Operating and maintaining Electronics / Electrical instruments.

UNIVERSITY NEWS

Form IV

(See Rule 8)

1. Place of Publication : New Delhi
2. Periodicity of its Publication : Weekly
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I, Sutinder Singh, hereby declare that the particulars given above are true to the best of my knowledge and belief.

Sd/-
Publisher

Job requirement : The selected candidate would be required to operate and maintain Electrical/Electronic instruments in the Geotechnical Laboratory of the Institute.

12. Senior Tech. Asstt.—1 Post (Architecture) Rs. 1640-60-2600-EB-75-2900 (Total Emoluments Rs. 2073.00)

Qualifications

Essential : 3 years Diploma or equivalent in Architectural Draftsmanship from a recognised Institution plus 3-5 years experience in Architectural Draftsmanship.

Job requirement : The selected candidate will be required to handle work of architectural draftsmanship connected with the R & D and sponsored activities of the Institute.

13. Senior Tech. Asstt.—1 Post (Civil) Rs. 1640-60-2600-FB-75-2900 (Total Emoluments Rs. 2073.00)

Qualifications

Essential : 3 years Diploma or equivalent in Structural/Civil Draftsmanship from a recognised Institution plus 3 5 years experience in Structural Draftsmanship.

Job requirement : The selected candidate will be required to handle work of Structural Draftsmanship connected with the R & D and sponsored activities of the Institute.

14. Asstt. Engineer (Civil)—1 Post Rs. 2000-60-2300-EB-75-3200-100-3500 (Total Emoluments Rs. 2480.00)

Qualifications

Essential : 3 years Diploma in Civil Engineering from a recognised Institution with 5-8 years relevant experience or B.E. (Civil)/B Tech. (Civil) with 2-4 years relevant experience.

Desirable : The candidate should be well conversant with preparation of estimates, contractor's bills, tender documents, method of measurements and specification of civil works. Experience and knowledge of modern construction, practices will be an added advantage.

Job requirement : To control and supervise construction and maintenance of civil works, sanitary and water supply installation, road etc. of the Institute and Staff residential colony.

15. Security Officer — 1 Post Rs. 2000-60-2300-EB-75-3200-100-3500 (Total Emoluments Rs. 2480.00)

Qualifications : A degree from a recognised university with atleast 5 years' experience in a similar position in a large industrial undertaking, research laboratory or in Police or Defence services. Candidate should be conversant with modern methods of industrial laboratory security, fire prevention etc. Should be able to handle fire arms and should possess good physique and personality. Preference will be given to Ex-Army Officer. Age limit 35 years.

Job requirement : Will be responsible for security, watch and ward, fire fighting arrangements in the Institute Campus, liaison with local police authority etc. and any other work of responsibility assigned by the Head of the Institute.

Reservation : The posts of Scientist B at S. No. 3 and 5 are reserved for Scheduled Caste Candidates and S. No. 4 for Scheduled Tribe Candidates. In the event of non-availability of SC/ST candidates the post will be filled by general candidates. The post of Technical Officer A at S. No. 8. Technical Asstt. Gr. VIII at S. No. 10 are reserved for SC candidates only. The post of Tech. Asstt. Gr. VIII at S. No. 9 (1 post) and Sr. Tech. Asstt. at S. No. 13 are reserved for ST candidates only.

The above posts carry usual allowances admissiale under the Central Govt. rules as applicable to the Council employees. Appointment to posts at S. No. 1 to 6 will be on contract for a period of 6 years (including the period of probation of two years) in the first instance.

The number of vacancies mentioned against each category is provisional and may vary at the time of selection. If more vacancies with identical job requirements become available, these can also be filled from among the candidates who might apply for the above posts.

Application forms can be obtained (free of cost) from the Administrative Officer, Central Building Research Institute, Roorkee upto **25.3.1988.** Separate application form should be submitted for each post. No. of advertisement, name of the post applied for and full address in block letters sent together with self addressed envelope of size 23 x 10 cm affixed with stamp worth Rs. 1.40 paise for obtaining the application form.

Complete application in the prescribed form separately for each post together with non-refundable application fee of Rs. 8/- (Rupees eight) (SC/ST candidates are exempted from payment of application fee) in the form of crossed Indian Postal Order drawn in favour of Central Building Research Institute, Roorkee should reach this office not later than **11.4.88.** Applications must be supported by attested copies of certificates/testimonials relating to educational qualifications, date of birth, experience and original community certificate in respect of SC ST candidates from the appropriate authority.

A lower standard of suitability consistent with efficiency will be applied ir respect of SC/ST candidates. Since it i not possible to call all the candidate for interview, the applications will b shortlised for the purpose and the deci sion of a duly constituted screening committee will be final in this regard Applicants called for interuiew will b paid single second class rail fare to an fro from the actual place undertaking the journey or from th normal place of residence whichever nearer on the production of relevar documents of travel. Applications fror employees working in Govt. depar ments, public sector organisations an Govt. funded research agencies will b considered only if forwarded throug proper channel and with a clear cert ficate that the applicant will be relieve within one month of receipt of th appointment orders. Incomplete appl cations in any respect and those receive after due date are liable to be rejecte Services of incumbents shall be tran ferable anywhere in India.

Canvassing in any form and/or brin ing in any influence political or othe wise, will be treated as a disqualificati

INTERIM ENQUIRIES WILL NOT BE ENTERTAINED

CENTRAL MINING RESEARCH STATION. DHANBAD

(Council of Scientific & Industrial Research)

Advertisement No. 1/88

Vacancy : Scientist 'B' —Reserved for S/C, S/T community.

No. of Post : Four (Three for S/C and one for S/T).

Pay Scale : Rs. 2200-75-2800-EB-100-4000/- Plus usual allowances per Central Govt. rates Stationed at Dhanbad. Minimu salary at initial stage Rs. 2726/- approx. Details may seen in the Employment News Dated 27th February '19

MAULANA AZAD COLLEGE OF TECHNOLOGY

BHOPAL-462 007

(A Regional Engineering College)

Advertisement No. Estt/R/1/

Applications are invited for the following posts in prescribed forms.

(A) Professor :

(a) Computer Science/Engineering

(b) Civil Engineering

(c) Electronics

Scale of Pay : Rs. 1500-60-1800-100-2000-125/2-2500 (To be revised)

Essential Qualifications : 1. An eminent scholar with published work of high quality, actively engaged in research. Experience of guiding research at doctoral level.

2. Ten years experience of teaching and/or research,

OR

An outstanding Engineer/Technologist with established reputation who has made significant contribution to knowledge.

Specialisation for : (a) Computer Science/Engineering

Programming Languages / Operating Systems / Data Processing / Artificial Intelligence / System Analysis/Computer Networks / Computer Architecture/ Computer Graphics.

Experience on management of computer of centre and familiarisation with Fourth Generation Computers.

(b) Civil Engg.

(i) Structural Engineering

(ii) Fluid Mechanics and Hydraulics/ Environmental Engineering/Surveying/Soil Mechanics

(c) Electronics

Microwave/Communication theory/ Digital Electronics & Micro Processors/ Television Engg./Integrated Circuits/ Fibreoptics/Space Communication & Remote Sensing/Radar Engg./Antennae Engg./Control & Instrumentation.

(B) Asstt. Professor Electronics

Scale of Pay : Rs. 1200-50-1300-60-1900 (To be revised)

Age : Not below 30 years.

Essential Qualifications

Good academic record with a Doctor's degree in relevant field. About five years experience of teaching and/or research and development.

Candidates not possessing Ph.D. may be considered if they have to their credit equivalent research published work of design/development work of high order either in the institution or in an industry.

Specialisation

Microwave/Communication Theory/ Digital Electronics and Microprocessors/Television Engg. / Integrated Circuits/Fibreoptics/Space Communication and Remote Sensing/Radar Engg./Antennae Engg./Control & Instrumentation.

(C) Lecturer : (a) Computer Science/ Engg.

(b) Electronics

Scale of Pay : Rs. 700-40-1100-50-1600 (To be revised)

Age : Not below 22 years.

Essential Qualifications

1. Master's degree in appropriate field.

2. Consistently good academic record. First class at B.E. and/or M.E. level.

3. One year's relevant professional experience outside academic/research institutions.

Relaxed Qualifications

First class B.E. degree holders may also apply for the post but the person if appointed will be required to acquire M.E. degree within a period of five years of his/her appointment, failing which he/she will not be able to earn future increments, until he/she fulfils this requirement.

Specialisation

(a) For Computer Science/Engg.

Programming Languages/Operating Systems/Data Processing/Artificial Intelligence / System Analysis/Computer Networks / Microprocessors / Computer Architecture.

(b) For Electronics

Microwave/Communication Theory/ Digital Electronics and Microprocessors/ Television Engg./Integrated Circuits/ Fibre optics/Space Communication and Remote Sensing/Radar Engg./Antennae Engg./Control & Instrumentation.

(D) Foreman (Workshop)

Scale of Pay : Rs. 650-30-740-35-810-EB-35-880-40-1000-EB-40-1200 (To be revised)

Age : Not below 30 years

Qualifications

A First or second class Bachelor's degree in Mechanical Engineering with 3 years experience in a reputed workshop in a responsible supervisory capacity.

OR

A First or Second Class Diploma in Mechanical Engineering with atleast 10 years experience in a reputed workshop in responsible supervisory capacity.

(E) Registrar

Scale of Pay : Rs. 1100-50-1600 (To be revised)

Age : Above 45 years

Qualifications and Experience

Essential : A good Degree in Arts, Science, Engineering, Commerce, Business Administration. Considerable administrative experience in a responsible position either in a high academic institution or business organisation of standing or Government Department. Adequate experience in financial affairs, such as budget, accounts, rules and regulations relating to expenditure, experience in handling agenda and minutes of meetings. Knowledge of Government Rules relating to service and establishment matters; familiarity with academic activities and working procedures and development of educational institutions; ability to handle men and stores, capacity to lead.

Desirable : Wide sympathy for students and colleagues; ability to develop corporate life in residential campus; knowledge of military training; degree in Law.

(F) Deputy Registrar

Scale of Pay : Rs. 700-40-900-EB-40-1100-50-1300 (to be revised)

Age : Not below 35 years.

Qualifications & Experience

Essential : A degree in Arts/Science/ Business Management, Commerce.

Atleast 10 years experience in a responsible supervisory position in an academic institution/Business Organisation of repute/Govt. Deptt. Experience to be in :

- (a) Financial matters such as budgeting, stores, accounting etc; and adequate knowledge of account rules.
- (b) Academic matters concerning students, examinations university rules and regulations.
- (c) Establishment and legal matters, service rules, regulations and meetings.

Note : For (F)

1. Those who had applied earlier in response to Advertisement No. Est/R/3/Dec. '86 need not apply again as their earlier applications will be considered.
2. Qualifications relaxable in cases of outstanding experienced candidates.

General Instructions

1. Age and experience relaxable in case of exceptionally outstanding candidates.
2. Candidates serving in the Government / Semi-government / Autonomous organisations should apply through Proper Channel or they should produce 'No Objection Certificate' from the employer at the time of interview, if called. Those who had applied on prescribed application form and through proper channel in response to previous advertisement may send their application on plain paper mentioning further achievements, if any
3. Higher initial pay may be considered in deserving cases.
4. The benefit of CPF-Cum-Gratuity and allowances are admissible according to college rules.
5. Application form can be had from the REGISTRAR, MAULANA AZAD COLLEGE OF TECHNOLOGY, BHOPAL-462 007 on requisition accompanied by self addressed and Rs. 2.20 Paise stamped envelope, 25 x 10 cm size giving (on the top of the cover also) name of the post and advertisement number Estt. (R)/1/Feby/88 .
6. Completed applications should reach the REGISTRAR at the above address on or before **21st March, 1988.** Incomplete/late applications and those without registration fee of Rs. 7.50 in the form of Crossed Indian Postal Order may not be considered.
7. Adequate number of seats are reserved for SC/ST candidates. Other things being equal preference will be given to candidates belonging to SC/ST.

   Further details will be made available in the Instruction sheet attached with the prescribed application form.

REGISTRAR

GUJARAT AGRICULTURAL UNIVERSITY

Sardar Krushinagar-385506
DIST. BANASKANTHA

FACULTY POSITION
EXTENSION OF TIME LIMIT

Reference our Advertisement No. 2/87, 3/87, 4/87, 5/87 and No. 1/88.

Dated : 22 February, 1988

In last date for receiving applications in response to the advertisements for faculty position in various disciplines of Agriculture, Veterinary Science, Dairy Science, Home Science, Basic Science & Humanities and Agricultural Engineering faculties published in University News on 13th April, 1987; 27th April, 1987; 11th May, 1987; 20th July, 1987; has been extended upto **31st March, 1988.** Those who fulfil required qualifications may apply in response to these advertisements.

Those who have applied in response to above advertisements earlier need not apply again.

The terms and conditions of appointments in the University will *inter alia* include appointment on two year contract basis. Other instruction and conditions remain unchanged.

This condition will also be applicable to the appointment of Principals for which advertisement has been issued vide No. 1/88, dated Sixth February, 1988 in this newspaper.

R.J. Patel
REGISTRAR

SARDAR PATEL UNIVERSITY

VALLABH VIDYANAGAR—388120
(Gujarat State)
Notification No. EST/5 (1987-88)

WANTED

- I. **Professor** : Computer Science (MCA Course)
  Pay Scale : Rs. 1500-2500.
- II. **Reader in :** (1) Animal Science (2) Commerce (3) Library Science (4) Computer Science (MCA Course)
  Pay Scale : Rs. 1200-1900.
- III. **Lecturer in** (1) Theoretical Chemistry (2) Microbiology
  Pay Scale : Rs. 700-1600.
- IV. **Non-Teaching Posts :** (1) Technician (Electronics/Electrical) for MCA Course-Temporary (2) Jr. Clerk Library (3) Research Associate in Chemistry (Polymer—Temporary)
  Pay Scale : For (1) Rs 1200-2040 (2) Rs. 950-1500 (3) Rs. 1800/- fixed.

All the posts except at Sr. No. IV (1) and (3) carry benefits of Dearness Allowance, G.P.F., Gratuity & Pension Scheme as per University Rules. Posts at Sr. No. IV (1) carries D.A. only.

Qualified candidates from SC/ST will be given preference. SC/ST candidates must attach bonafide certificate from proper authority.

Prescribed Application forms for the above posts can be had from the University Office on payment of Rs. 5/- in cash or by I.P.O. Details of the qualifications will be supplied with the forms.

The Last date of receipt of Application is **5-4-1988.**

N.G. Upadhyaya
OFFG. REGISTRAR

INDIAN COUNCIL OF MEDICAL RESEARCH

CORRIGENDUM

for the post of **DIRECTORS**

- **(1) At the Regional Medical Research Centre, Bhubaneswar.**
- **(2) At the Regional Medical Research Centre, Port Blair.**
- **(3) At the Rajendra Memorial Research Institute of Medical Science, Patna.**
- **(4) At the National Institute of Nutrition, Hyderabad.**

Application forms can be obtained from the office of the Director General, Indian Council of Medical Research, Post Box No. 4508, Ansari Nagar, New Delhi—110 029.

Printed & Published by SUTINDER SINGH, on behalf of the Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi-110002. Grams : ASINDU. Phones : 3315105, 3313390, 3312305, 3310059 and 3312429 Telex 31 5578 AIU IN
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University News

MONDAY, MARCH 21, 1988 Rs. 1.50

Higher Education in India
—The Shifting Perspectives

●

Democratization of Education

●

NBE & Medical Education

●

Training for Agricultural Development

●

Research Scientists Awards

●

Indira Gandhi Memorial Lecture

CLASSIFIED ADVERTISEMENTS

PANJAB UNIVERSITY
CHANDIGARH

(Advertisement No. GP/1/88/ASC)

Applications are invited for the following Temporary posts for the Academic Staff College at the University so as to reach the Registrar, Panjab University, Chandigarh, by **11.4.1988** alongwith postal order of Rs. 10/-. Fourteen days extra time is permissible to the persons who have to submit their applications from abroad :

1. **Reader** —One post
(Grade Rs. 1200-1900-UGC-Unrevised)

2. **Lecturer** —One post
(Grade Rs. 700-1600-UGC-Unrevised)

Qualifications

For Serial No. 1

Essential : Good academic record with first or high second class Master's Degree; Ph.D. or research work of an equally high standard. At lease 5 years experience in a University or educational institution.

Desirable : Experience of conducting workshops, orientation courses/or of working as resource-person for seminars, workshops/ orientation courses.

For Serial No. 2

Essential : Good academic record with first or high second Class Master's Degree: Ph.D. or research work of an equally high standard.

Desirable : Five years teaching experience in a college or a University. Special interest in workshops, seminars, debates etc. Qualifications for the posts are relaxable if a candidate is found otherwise suitable.

Note : For all the above posts—

(i) The appointment in the first instance will be upto 31.3.1990 (but likely to continue);

(ii) The age of retirement will be 60 years; and

(iii) The candidates applying for the posts be preferably below fifty-five on **31.3.1988**.

(iv) It is not obligatory on the part of the University to call all qualified persons for interview.

(v) The University may, if it so chooses, appoint a person on deputation.

(vi) The Vice-Chancellor could place before the Selection Committee names of suitable persons for its consideration alongwith applications received in response to the advertisement.

(vii) On the recommendations of the Selection Committee, the appointing authority can relax any qualifications in the case of those, considered suitable.

(viii) The number of vacancies may change.

(ix) The University may also prepare panels of suitable candidates for appointment against vacancies occurring within a specified period.

The candidates have the option to fill the form on both sides and to attach nine photostat copies thereof. 15% posts of Lecturers will be reserved for the members of the Scheduled Castes and 7½% for the members of the Scheduled Tribes, but these will be treated as unreserved if no suitable Scheduled Castes/Scheduled Tribes applicant is available.

Application forms can be obtained from the Cashier, P.U. personally on payment of Rs. 2/- or by making a written request to the Finance & Development Officer, P.U. Chandigarh accompanied by a self-addressed stamped envelope of 23 x 10 cms and a postal order of Rs. 2/- drawn in favour of the Registrar, P.U. Chandigarh-160014.

INDIAN INSTITUTE OF TECHNOLOGY
BOMBAY

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Editor :
SUTINDER SINGH

Higher Education in India
The Shifting Perspectives—I

K.K. Balachander*

> *"In education, the most important factor must be the inspiring atmosphere of creative activity. And therefore the primary function of our University should be the constructive work of knowledge. Men should be brought together and full scope given to them for their work of intellectual exploration and creation; and the teaching should be like the overflow water of this spring of culture, spontaneous and inevitable. Education can only become natural and wholesome when it is the direct fruit of a living and growing knowledge. Our education should be in full touch with our complete life, economical, intellectual, aesthetic, social and spiritual; and our educational institutions should be in the very heart of our society, connected with it by the living bonds of varied cooperations. For true education is to realise at every step how our training and knowledge have organic connection with our surroundings."*
>
> **—Rabindranath Tagore**

(**Note** : A historical overview of the development of higher education in India from the ancient times till the end of the British rule may serve as an introduction to a detailed review of the development that took place in the post-Independence period. This will enable one to see whether there is an underlying thread of continuity from the past to the present, or any radical shifts have taken place over the years. It will also mirror the evolving role of the State and the policies, including financial, pursued by it. While attempting a review of the higher educational development during pre-British and British periods in the following sections, attention is paid to only those distinguishing features which in some way are related to the situation in vogue in India).

I

Some Pointers from the Past

India's achievements in the field of higher education, or to be more exact, 'higher learning', go centuries before the coming into existence of medieval universities/colleges in Europe and England. Right from the ancient times, the Vedic-Upanishadic period, education received a pride of place in India, and it made significant contributions to the development of man's knowledge and culture. The country had a well-knit and well-established system for higher learning where the idea of a modern college/university could be seen. World-famous universities like Takshashila and Nalanda flourished at certain periods of history and became synonymous with the higher achievements of education. The period of Takshashila's fame is said to have ended about the fifth century A.D. and Nalanda flourished till the end of the twelfth century. Scholars from all parts of India and from distant countries flocked to these seats of learning with a sense of reverence, humility and hope. Other learning centres flourished at Vallabhi, Vikramasila, Benares, Nadia, Ujjain and Kanchi. They were Temples of Learning in the real sense of term.

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Higher learning in India, before the modern age, was mostly individual oriented. *Pure knowledge for its own sake was the object of pursuit, uninfluenced by and without any repercussions upon the utilitarian ideal.* The religious and philosophical systems of that period may be seen as the foundation of higher learning, which had a tendency to play down earthly concerns and to turn away from materialistic life. Both teachers and students strove for 'excellence' which gave them the creative joy of fulfilment, and made them serve the society. The aim was not mere learning, but building up of character, acquisition of wisdom and rendering social service, and this made the students mature, unselfish and committed to higher values of life. Subjects like philosophy, religion, logic, mathematics, madicine, astronomy, astrology, educational science (pedagogy), politics and polity, fine arts, military science, horticulture etc., were studied with great enthusiasm. However, the demand for higher learning came only from a limited section of the community; the bulk of the population lower down had no access to it though they received some vocational training by working at their traditional occupations.

The higher learning institutions that existed then were quite compact in size and simple in organisation. Their requirements were few and could be met easily. No detailed arrangements for financing it were, therefore, needed. The teachers mainly kept them going by their personal earnings, **Guru Dakshina** which was entirely voluntary. Later, in the Buddhist period, in universities like Takshashila and Nalanda, some sort of a tuition fee came to be charged in advance from rich students, besides the **Guru Dakshina**. The kings granted lands and tax-exemptions to institutions, scholarships to deserving students and gifts/prizes/awards and pensions to teachers. It may be mentioned that *no strings were attached to such financial and other patronage. The institutions and teachers enjoyed full freedom without any interference from the rulers. The teachers were regarded with respect and reverence, and the society provided them with motivation, material incentives and status.* They were supposed to be circumspect in their conduct, knowing fully well that students would take them as models. Teachers used to pay individual attention to students, and the latter in turn showed utmost reverence to the former. It was the prerogative of the teachers to choose their pupils and the former decided the whole gamut of activities pertaining to teaching. In short, there was an awareness of the need to build a system of higher learning in terms of values and the imparting of knowledge for its own sake. And the society realised its obligations towards this sacred cause. The objective of the institutions was not to fit men for some special mode of gaining a livelihood, but to cultivate the mind and form the intelligence. On earlier (pre-British) development of higher learning (education), let Thomas have the last word :

> "Education is no exotic in India. There is no country in the world where the love of learning has so early an origin or has exercised so lasting and powerful an influence. From the simple poets of the Vedic age to the Bengali philosophers of the present day there has been an uninterrupted succession of teachers and scholars."
>
> (Thomas, F.W., **History and Prospects of British Education in India**, 1891).

II

The British Period : Introduction of the Modern System of Higher Education

Though the British administration realised the necessity of undertaking some measure of responsibility for education, the officialdom was divided in th initial stages as to whether instruction should be provided in native or on Western lines. In 1935, Lor Thomas Babington Macaulay urged the Governmen to undertake a formal Western type of higher education imparting knowledge of European literature an science (through English), and to utilise the educatio grant towards that end. He also suggested that th institutions of oriental learning then existed should b used for the promotion of such a type of highe education. Later, a system of higher education, a envisaged by Macaulay, influenced future Britis policy on higher educational development. Macaulay's view triumphed ultimately not only due to th able advocacy of it by himself but also due to th support extended to it by many Indian intellectual which influenced the demand for modern higher education. There was a belief among them that the India people must learn something of Western scienc knowledge in which was expanding very fast, in ord to overcome their backwardness. In the past, wh the different civilisations were living almost in isol tion from one another, higher education demanded more than the mastery of the 'classical' languag literature and philosophy of one single civilisatio But with the impact of modern Western civilisation India and the prospect of a scientific age which h out promise of material comforts, many Indians of t day felt that their own ancestral culture was no lon enough if they were to survive in the machine a Naturally, *they started attaching more importance modern (English) higher education which laid g stress on material progress than on the preservation* *alues, and Macaulay only rekindled it.* The new olicy was reaffirmed by Charles Wood's Despatch of 854, and with minor modifications continued throughout the British rule.

Demerits and Merits

The new modern formal system of education, inaugurated under British rule, was divided into three tages—primary, secondary and higher—which was lifferent from the one that existed earlier. The number of colleges and universities was limited, but the xpansion in enrolment was proportionately much nore in higher education than at school levels. *This led to the development of a structure of education vhich was gradually getting heavier at the top.* The Seventh Quinquennial Review of the Bureau of Education, India (1912-1917) had conceded that the most triking feature of the Indian education (then) was its top-heaviness' and that from the point of view of nass elementary education, the country was far behind most others that laid claim to civilisation. In act, only 12.2 per cent of the population of British ndia was literate in 1941.

Higher education during British time made its mpact only upon a limited group belonging to the middle and upper strata of society, living in urban centres of the country, and was mostly confined to males. The British thought that education would percolate from the 'classes' to the 'masses' in due course. (Metaphorically expressed, "drop by drop from the Himalayas of Indian life useful information was to trickle downwards forming in time a broad and stately stream to irrigate the thirsty plain"—Mayhew, 1926 92). The main objective of higher education was in fact to raise a class of educated Indians to man the growing politico-administrative organisaion or who may, in Macaulay's words, "act as interpretators between us and the millions whom we govern—a class of persons Indian in blood and colour, but English in tastes, in opinions, in morals and intellect." The Government was just interested in obtaining a regular supply of personnel for 'white-collar' jobs and persons with just enough technical background and skills to look after services like ailways, roads, means of communications and public works. In the selection of candidates for public serices employment, preference was shown to those who had been educated in the Western system of higher education. The result was the creation of a class of elites who were more concerned with their own material gains and strengthening and perpetuating their privileged positions; very few cared for the masses and thus a wide gulf was created between them and the masses.

Despite the fact that higher education was confined only to the upper and middle income groups, more graduates were being produced than available positions. As Nurullah and Naik point out, "the spectre of educated unemployment had already raised its ugly head in the field of collegiate education by 1921 itself." The Hartog Committee (1929) also had observed that universities/colleges were getting overcrowded with men of whom a large number failed and for whom there was no economic demand. The higher education system had created then a large number of unemployables and unemployed.

The main job of Indian universities was to hold examinations and confer degrees which served as a passport for entrance to positions in Government. They were not meant to be central places where scholars and students could congregate for the pursuit and dissemination of advanced knowledge. The courses provided were of a general, job-oriented, literary type which lacked technically useful knowledge. The curricula in universities/colleges were such that they discouraged the spirit of enquiry, a scientific outlook and creativity; they were tuned to the peculiar colonial requirement. To quote from the Seventh Quinquennial Review again : "Higher education in India runs in a literary grove... The genius of the country is speculative rather than practical. The literary courses lead to government employment and adapt themselves to the traditional method of teaching and to the highly developed memorizing faculty which characterises so many Indian students." There were very few institutions offering professional/technical courses. A large number of Arts graduates, but not enough engineers, doctors, teachers, technicians, scientific research workers and the like were produced each year. This could also be attributed to the expensive character of these types of courses, and the British rulers avoided assuming responsibility for starting them; the private sector too did not venture into them for the very same reason. *The British rulers, in short, did not want to assume themselves the role of training people for activating economic progress.*

When the foundations of the modern system of higher education began to be laid, the traditional system of education (the indigenous system consisting of elementary and higher schools and oriental colleges) received less and less attention and gradually faced extinction. The support that they used to get from the affluent classes etc., also was not forthcoming now. The indigenous system, however, managed to survive, though on a diminishing scale, in States like Kerala mainly with the patronage of feudal chieftains and kings (perhaps this was responsible for the well-entrenched traditions of education and the higher rates of literacy in this State even as early as the beginning of the twentieth century). While many other countries had built a national system of education on the foundations of their traditional system, and carried out reforms within their traditional model to meet the new challenges, in India, however, it was replaced by a new system altogether during the British period. It has to be noted that even the remnants of the traditional higher educational system, as had then survived, compared favourably with many contemporary nations of the world. According to J.P. Naik, though the introduction of Indians to European knowledge had helped the process of modernisation, the thoughtless destruction of the indigenous system was a wrong policy; it had great potentialities of being developed into a national system of education by suitable reforms. If this had been done, India would perhaps have become one of the most educationally advanced countries of the world. In spite of the exhortations of some British administrators and educationalists like Elphinstone, Adam Munro and Thomson, who had seen the importance of encouraging the indigenous system, this system was allowed to die by deliberate competition and by sheer neglect.

The British rule, it has to be admitted, brought in its wake some significant changes in the financing and organisation of higher education. It was realised that it would be difficult for the State to provide higher education single-handed, and that both Government support (through grant-in-aid) and private initiatives were necessary. A beginning was thus made for participation by the private enterprise in the development of modern higher education. The grant-in-aid system, which was the corner stone of British policy before Independence got stimulated and encouraged private agencies and missionaries to start colleges in many cities, and these institutions dominated the higher educational scene in 1947. It was also recognised that such institutions could thrive only if they could confidently rely on the continuance of whatever aid that had been extended to them, and that the grant-in-aid rules should be definite and precise, and not ambiguous. The financing of the higher education system was thus put on a more or less scientific basis during the British period. Apart from the grant-in-aid from the State, universities/colleges were permitted to develop their own resources, including fees, and thus expand and improve their work. It was believed that a far more increase in higher educational facilities would take place by thus drawing private support than would follow by a mere increase of expenditure by the Government. The Government also maintained a limited number of colleges as 'models' for private enterprise where the entire finances were managed by the former. The private institutions maintained themselves mainly from income derived from student fees, donations and endowments.

As far as the universities were concerned, though they were the creation of the Government, and derived a good proportion of their current resources from the Imperial Treasury, the latter did not attempt to keep these institutions tied to its apron-strings. It was clearly understood that a system of full Government control or infringement of university autonomy was not only a loss of dignity to the university itself but a loss of the highest kind of efficiency in its working. The Government did not believe in the dictum "one who pays the piper has a right to call the tune of his choice". **In fact, university autonomy was treated almost on the same footing as the independence of the judiciary.** The financial support from the Government stimulated the development of the universities: assistance was extended to meet their dificits and to promote particular lines of development. The universities, on their part, did not bid for more funds than they strictly needed. They were permitted to prescribe their own courses of study and were free to adopt their own ways of teaching, appoint their own staff, etc.

During British period, the Government had set up several commissions/committees to review the education as well as the higher education system, though their recommendations could not be implemented fully. The Indian Education Commission of 1882 and the Government of India Resolutions on Education Policy in 1904 and 1913 covered almost every aspect of higher education. Some of the reforms suggested by the Calcutta University Commission (1917-1919), the Hartog Committee (1929) and the Sargent Report (1946-47) would be pertinent even today. For example, the GOI Resolution on Educational Policy (1913) stressed the urgency of (a) separating the function of teaching and examining, insisting thereby on the need of having examining as well as teaching universities, the establishment of the former in each State with smaller jurisdiction and the latter at suitable centres, (b) the training of teachers, improvement of their salaries and other benefits, and (c) the importance of research work in universities. The Calcutta University Commission had categorically stated that the universities should not become mere appendages of State Education Departments. It had also suggested that teachers should be entrusted with more powers over academic matters and the regulations governing the working of the universities should be made less rigid. Also the existence of an Indian Education Service (IES) during the British period (1864-1924) helped to bring about a national perspective to education, particularly higher education.

[To be concluded

Democratization of Education in India

Satya Pal Ruhela*

"Education makes people easy to lead, but difficult to drive;
easy to govern but impossible to enslave."

—**Henry Peter**

I

A critical and promising stage in human civilization seems to have now come when India, the largest democracy in the world, with its most recent New Policy of Education (1986), is expected to be in a position to move forward most significantly in its march of fulfilment of the promises of democracy, social progress and quest of the spirit of mankind, and also to provide leadership and help to other developing nations aspiring to do so.

Education for freedom and democracy has been the most passionate concern of our freedom-fighters since Gandhiji gave his stirring ideas on Basic Education in 1937, ten years before India actually won her freedom. During the post-Independence era, all the three major Education Commissions and a host of committees on education appointed by the Government of India have been expressing their great concern as to how education can be a potent instrument of democratization. Many things have been done during the last four decades of India's Independence to make this concern a practical reality, but even then when the Government of India document **Challenge of Education** (1985) appeared with a plethora of educational statistics, the nation was rather shocked to learn from that data that we had till then been far behind other nations and much below our widely professed claims about democratization of education. Soon thereafter, the New Policy of Education-1986 document has been released by the Government of India, and it raises many hopes that it will help us realising our goal quickly and surely.

The purpose of this paper is to review this document and try to assess the veracity or functionality of its claims in the realm of democratization of education.

II

An 'Ideal Type Analysis' Approach

Out of the several sociological approaches—historical, comparative, structural-functional analysis, ideal type analysis, survey etc. we think that it would be most appropriate to use 'Ideal Type Analysis' approach to study the problem of the democratization of education in India in the context of the New Education Policy.

Let us, therefore, first of all develop an ideal picture or profile of the concept of "Democratization of Education" by culling the pertinent views of scholars on this subject, and then try to compare or juxtapose the ideas presented in the New Education Policy document and the realities of the educational world in India with the ideal picture evolved by us.

In this section, we shall therefore attempt to evolve and ideal picture of "Democratization of Education", keeping in view the socio-cultural and, politico-economic contexts of the Indian nation. Democracy, despite being an all-pervasive concept, rests ultimately on two fundamental values: equality and freedom. When Gandhiji advocated his plan of Basic primary education through the medium of village handicrafts, he hoped that "it will check the progressive decay of our villages and lay the foundations of a juster social order in which there is no unnatural division between the haves and have-nots and everyone is assured of a living wage and the right of freedom."[1] According to Ruth Benedict, noted social scientist of USA, "The transmission of our democratic heritage means, primarily, then, preparing children in our schools to act as adults with initiative and independence."[2] Professor S.N. Panda capsules the concerns of education in a democracy in these words : "Education in a democracy emphasizes the freedom and dignity of the individual, responsible citizenship, economic efficiency, self-realization, equality of opportunity for all."[3] Val D. Rust, in his renowned work **Alternative in Education** concludes his survey of 'Politics and Education' in these words : "State-controlled mass schooling whose charge has been to instil in the general public the values which the State has deemed appropriate, is being seriously challenged. The individual, the community, the culture to which people identify are assuming greater importance in the eyes of more and more people than are the state aims."[4]

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More than any other source, the UNESCO document **Learning To Be** (1972) gives us the most pertinent, crisp and sophisticated ideas on this subject which are highlighted asunder :

> "...equal access to education is only a necessary—not a sufficient condition for justice. Equal access is not equal opportunity. This must comprise equal chance for success.
>
> ...Educational democracy does not reside solely in multiplying schools, extending opportunities for access to the various levels and prolonging the period of study."
>
> In reality, many other questions arise :
>
> How do the various branches of education fit in with each other ? Have the desired relationships been established between education for the young and that of the adults ? Have the conditions for a real horizontal and vertical mobility between institutions of all types and of all levels been created? Are there any dead ends in the system? Does it enable everyone to 'catch up' at any moment by acquiring whatever knowledge he or she may lack? Can people of all ages enter and leave the system at will; enter it, even belatedly, on the basis of whatever personal experience they may have acquired in private or social life ?
>
> Furthermore, an educational system cannot be described as democratic, even when students and pupils are recruited on a democratic basis, if its fundamental approach is not democratic; if it is open, broadly speaking, but run by narrow-minded people; if it endeavours to break down social barriers but restricts and improvises the subject matter taught; if it offers learners many paths but bars them access to truth.
>
> Democratising education will only be possible if we succeed in shaking off the dogmas of conventional pedagogy, if free and permanent dialogue is set up within the educational process, if this enhances individual's awareness of life, if learners are guided towards self-education and, in short, change from objects into subjects. Education is all the more democratic when it takes the form of a free search, a conquest, a creative act ; instead of being, as it so often is, something given or calculated, a present or a constraint.
>
> Equality in education requires personalised pedagogy, an attentive investigation into individual attitudes. Equal opportunity does not mean levelling. It must not at any cost entail the denial of the fundamental freedoms of individual, attacks against the integrity of the human person or technocratic, bureaucratic abuse of power.
>
> ...it (Equal opportunity for all) means making certain that each individual receives a suitable education at a pace and through methods adopted to his particular person.
>
> ...Ensuring that people will be able fully to exercise their democratic rights in education also means guaranteeing their right to participate in the management of their educational establishment and in the definition of its policies.
>
> ...Educational structures must be remodelled, to extend widely the field of choice and enable people to follow life-long education patterns. Subject matter must be individualised; pupils and students must be made aware of their status, their rights and their own wishes; authoritarian forms of teaching must give way to relationships marked by independence, mutual responsibility and dialogue; pedagogical training must be geared to knowing and respecting the multiple aspects of human personality; guidance must replace selection; those making use of educational institutions must participate in their management and policy-making; the bureaucratic aspects of educational activity must be broken down and its administration decentralised."[5]

It is against the baseline of these criteria and ideas that we should now assess the provisions of the New Policy of Education—1986.

III

The New Policy of Education

According to the New Policy of Education 1986, "The concept of a National System of Education implies that, upto a given level, all students, irrespective of caste, creed, location or sex, have access to education of a comparable quality." It further says : "To promote equality, it will be necessary to provide for equal opportunity to all not only in access, but also in conditions for success." Again, "Steps will also be taken to foster among students an understanding of the diverse cultural and social systems of the people living in different parts of the country."

In order to achieve the above mentioned goals, the document prescribes 10+2+3 system of schooling for the whole country, a common core curriculum, promotion of link language, translation of books from one language to another, underscoring the universal-character of universities and other institutions of higher learning, provision of life long education and various sorts of steps to promote and strengthen education of women, scheduled castes, scheduled tribes, minorities, handicapped people and adults, 'Operation Black Board' to improve primary schools all over the country, launching of a large and systematic programme of non-formal education, and lastly and most notably the starting of pace-setting schools "Navodaya Vidyalayas—one in each district of the country, and the national Open University. The document also talks of autonomous colleges, binding teachers to follow norms of accountability in their work, decentralization and creation of a spirit of autonomy for educational institutions and giving pre-eminence to people's involvement, including association of non-governmental agencies and voluntary effort, and assigning local communities a major role in programmes of school improvement. The document finally assures us that "It will be ensured that from the Eighth Five Years Plan onwards it (the outlay on education) will uniformly exceed to 6 per cent of the national income."

This then is the complete gist of the contents of the New Policy of Education concerning democratization of education. The accompanying volume "**Programme of Action**" (1986) gives us details of the practical steps envisaged to be taken in pursuance of the above policy statements. Already many actions have been initiated like the massive re-orientation of teachers, opening of some Navodaya Vidyalayas and the starting of the Indira Gandhi National Open University, etc.

IV

A Critical Assessment

1. The first criticism is that the contents of the policy statement in regard to democratization of education are not as brilliant, comprehensive and imaginatively broad as the ideal picture of democratization of education has been drawn by the UNESCO document **Learning to Be.**

2. While many promises seem to have been made in the Policy document, it is a pity that the constraints of funds are in fact going to pour cold water on most of them. Let us qnote Dr. Amrik Singh in this connection :

> "According to the NPE (National Policy of Education), unqualified priority was given to two aspects of the universalization of elementary education. They were (i) universal enrolment and universal retention of children upto 14 years of age, and (ii) a substantial improvement in the quality of education. The price tag of this particular programme as worked out by the Ministry of Human Resource Development is reported to be Rs. 600 crores for the remaining years of the Seventh Plan in addition to Rs. 2000 crores of capital expenditure to provide the minimum physical facilities in those schools. How are the funds to be found ? The impediments to be overcome are three.
>
> One, before the NPE was adopted, the Prime Minister announed an additional availability of Rs. 1,500 crores over and above what had been provided for education in the seventh plan. The Planning Commission for obvious reasons is reluctant to find an additional Rs. 600 crores. Secondly, as is widely known, the Ministry of Finance is concerned at the inflationary pressures that have been already generated in the economy. The problem before it therefore is how to contain those pressures rather than add to them. Thirdly, even if an additional Rs. 600 crores could be found, what about school buildings and other facilities which are no less important than the provision of an extra teacher in almost half the schools and various other marginal facilities that have to be provided on a running basis.
>
> ...The situation therefore is much more difficult and complex than most people are prepared to admit.
>
> ...Half a year has already gone by since the Programme of Action (POA) was approved by Parliament. But no significant progress has been made in any direction and in consequence misgivings are being expressed over the fact that the momentum has either been already lost or is beginning to be lost."

3. The idea of autonomous colleges, which has been very vigorously stated in the NPE and POA documents, also appears to remain unfulfilled. The POA says that as many as 500 colleges would be raised to the status of autonomous colleges in the next 5 years. Dr. Amrik Singh rightly questions :

"Has any initiative been taken on this front since the POA was approved? To be able to say that a committee of the UGC is studying this question in depth is not to say much. The fact of the matter is with slightly more than half the Plan period left to implement this particular recommendation of the NPE, initiative should have been taken in the limited area for obvious reason that the Central Government does not have to consult anyone or seek concurrence for what it proposes to do. This refers to the colleges of Delhi. With more than 60 of them affiliated to the University of Delhi, the situation was ideal for initiating this move."[6]

4. On the proposal of Navodaya Vidyalyas, the following doubts expressed in **The Hindu** should be seriously considered :

> "A Central Educational Directorate supervising the work of 500 Navodaya Vidyalayas—holding separate entrance examinations in each district, making admissions with due regard to the urban : rural ratios and SC/ST quotas, effecting 20 per cent exchanges between Hindi and non-Hindi areas at the eighth standard stage, providing boarding and lodging to about 500 pupils in each of the projected schools, the whole sequence can prove a ghastly misadventure"[7]. As **The Hindu** wrote editorially on July 4;
>
> > "It would perhaps be unwise to project the Navodaya Vidyalaya scheme as the epicentre of the NPE......The selection mechanics are bound to be battered by political and bureaucratic pressures from the start, if the present practices are allowed to continue."

Those who know about the Navodaya Vidyalaya Cell located in the Department of Teacher Education of the National Council of Educational Research and Training, New Delhi, can testify that political and bureaucratic pressures do work, otherwise how is it that the educationist Professor L.C. Singh, the founding Head of that Cell has recently been replaced by a Professor who is infact a man of statistics and measurement, and not an educationist in the real sense.

5. According to Fr. T.V. Kunnankal, the then Chairman, Central Board of Secondary Education :

> "Modern educational management theory and practices still lie largely outside the knowledge and acceptance of many heads of institutions. Many tend to remain overlords in their own small kingdom, in the case of schools under private management, or the case of Government school heads, languish under the burden of rules and procedures, set and remotely controlled by the Departments. Effective decentralization cannot be done, along with the consequent grant of needed freedom or autonomy, unless the heads of institutions are sufficiently prepared and oriented to accept responsibility. Responsible freedom is quite a hot item to handle."[8]

These lines written by an eminent educational administrator in January 1987 indicate that democratic administration in our schools will continue to remain a far dream for many years, if not decades.

6. Let us now recall the other relevant socio-political facts of the reality of the contemporary educational scene in India. In recent months, many times news items have appeared in the national press that the representatives of All India Federation of University and College Teachers' Organizations and Delhi University Teachers' Association have been pleading and protesting with the Union Education Minister and the Prime Minister to announce the new grades for the university and college teachers on the condition that conditions of any new code of conduct and accountabilty must not be imposed on them. Evidently, the university and college teachers wish to keep on working with the same sanse of irresponsibility they are used to—teaching or not teaching at their sweet will, indulging in campus politics and regaling in anomie (normlessness).

The universities and colleges have time and again been attacked for their tendencies of double standards, gap between their manifest and latent functions, inbreeding, clique-politics, fall in educational standards, dishonesty and mass copying in examinations, growing nexus between politicians and university college authorities, the growing tendencies of ap pointing IAS and IPS officers as Vice-Chancellors, and regularly occuring feature of student strikes for atleast a month in every session.

The schools, especially the so-called Public schools in metropolitan cities like Delhi, have unabashedly increased their tuition fees so much that a nursery child has to pay anything between Rs. 225 to 250 as fee alone per month to the school. And this has happened after the publication of the National Policy of Education. Who cares for the pious sentiments about democratization of education or for the fear of the governmental action in this age of freedom ? Universities and colleges have also started increasing their fees, admission test fees fantastically, as the publishers have been increasing the prices of books and journals, making it difficult for the mojority of students coming from lower and lower middle classes to get the advantages of higher education. So much is the governmental fanfare about provisions of scholarships, freeships and boarding and lodging facilities and incentives being made for SC, ST and women candidates, that any foreigner to this land would be damn impressed by our grand theoretical success on the front of democratization. But who does not know in India that the SC, ST, women candidates located in interior villages and slums still do not know about many of these provisions; that bureaucratic inefficiency and corruption at every level and in almost every institution does not let any one to have his due promptly and honestly; and almost every institution and every officer, politician and agent of chage is impatiently waiting to fleece the prey falling into his hands. In a country where admissions, jobs, promotions, transfers, increments, national awards and even divisions, doctoral degrees and positions in examinations, are openly manipulated through recommendations, bribes, and such extraneous factors, and there are serious university scandals (like the ones in the Rohtak and Bombay universities) filling pages after pages in national dailies for weeks and months, we cannot but admit that democracy in education is a far cry indeed, if not a deception. The autocratic, feudalistic, clique-operating manner in which most of our university vice-chancellors function flouting all norms of freedom, democracy, human dignity, secularism and socialism, cannot be easily curbed by the pious sentiments of the NPE. So widespread is the alienation in all its forms—meaninglessness, powerlessness, anomie, self-estrangement, etc., that our educational order does not seem to emerge as a truly democratic one in near future. Researches have revealed that our education is, instead of leveling class differences, widening them; instead of making our educate people firm belivers in the concept of contest mobility making them run all the more after sponsored mobility; instead of making them nationally integrated and refined, making them all the more disintegrated, self-seeking and hedonistic. The social climate of most of our educational institutions and research laboratories is depressing, stifling, revolting to the spirit of human dignity. Suicides by research students and research workers and in universities and national level research institutions occasionally reported in the national papers are facts which no sociologist of education can ignore, for they testify to the grave degrees of social disorganization and anti-democratization that has come to stay in our educational institutions.

V

Epilogue

In ultimate analysis, it seems that the value crisis is at the root of the malady in our society. I am remineded of the following words of Sri Sathya Sai Baba, a great Spiritual Master of the contemporary world :

> "Chivalry of speech has increased,
> Chivalry of deed has disappeared;
> Life is laden with false vanities;
> Money has become our God;
> Pride has become our creed;
> Selfishness sits supreme in **Buddhi**'s seat
> Egotism has become our fashion;
> Creed has become our beauty;
> Dharma has come to nought;
> Compassion has sunk low;
> Moral ferver is lost;
> Hypocriscy has become the light of our life
> ....".

The challenge before education in India, therefore, is very great and serious. Let us hope that all the reference groups and reference individuals will rise to the occasion and seek, while working to translate the **Programme of Action** into practice, to bring in the long-cherished elements of the ideal picture of democratization of education in this country. ☐

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National Humanities Documentation Centre

An Alternate Model

Roma Ray*

The universe of knowledge can be studied under three main heads, namely, the Humanities, the Social Sciences and the Natural Sciences. All the three cater to the progress of society in different ways but at the idea plane, they are tied together. While the Natural Sciences unveil the secrets of nature and universe, and the Social Sciences concentrate on the study of society in all its ramifications, the Humanities constitute a distinct kind of knowledge "that is humanistic, which is concerned with human values and expressions of the spirit of man".

The humanities are based on the common experience of man which is open and available to all. As the Humanities tend to collect its data from ordinary day to day experiences, man's own innate sense provides him the criteria for his surest knowledge. This knowledge sharpens the values and spirit of men contributing to the 'Humanistic Study'. As the study is tradition oriented, the traditions and precepts which had been set by the earlier scholars have a remarkable influence in humanities. These features also explain why the humanities, unlike the sciences continue to cherish and use great works of the past.

E.H. Gombrich has rightly said 'Humanities serve to recover, preserve and interpret the cultural heritage of mankind'. Though the scholars of humanities rely on extensive use of literature, it is not confined to printed material alone. They use the manuscripts, official records, maps, papers of correspondence, seals, ancient scripts, epigraphs, etc. It will be apt to remind here that karl Marx did not do any field research; but he relied upon the factory reports available to all users of the British Museum. Thus the scholars of humanities need to have access to various kinds of materials. Besides, the present century has witnessed tremendous explosion of knowledge and the consequent proliferation of literature in all subjects. This has necessitated development of documentation techniques and establishment of documentation centres.

Though the radical growth in the volume of literature has changed the world of social scince and scientific research, the same has not been true of humanities. The Indian National Scientific Documentation Centre (INSDOC) has been established in the field of sciences, while the Social Sciences have been taken care of by the National Social Science Documentation Centre (NASSDOC) of the Indian Council of Social Science Research (ICSSR). It is however, unfortunate that documentation needs of the scholars in humanities have been completely ignored. Though the level of the study and research in the area of Arts and Humanities in India is quite significant, yet the documentation facilities for it at the national level are simply non-existent. The first step in this direction was taken by the Indian Library Association (ILA) when it set up its oriental section in 1975. It has since then held a number of national conventions on the subject. L.S. Ramaiah and T.V. Prafulla Chandra have done excellent groundwork for the establishment of a National Humanities Documentation Centre (NHDC). In their papers on the subject in *University News* of 2nd February, 1987 and 13 July, 1987 they have chalked out a blueprint for the proposed documentation centre—a very tough job indeed considering the complex nature of the subjects falling under the ambit of Humanities. They have highlighted the role played by the humanities in the multilingual cultural context of India and made out a convincing case for setting up of NHDC. Such a centre at the national level they opine, will help close understanding between various Indian languages and literature and promote national integration. Th blueprint shows the NHDC positioned at New Delhi with a regional centre in each state. At the nationa level, two tier system has been developed. On th one hand it will have a communication flow wit national and international information systems outside India, on the other hand, it will have direct lin with the six national constituents, namely, Lalit Kal Akademi, Sahitya Akademi, Sangeet Natak Akadem National Library, INSDOC and NASSDOC. T regional sub-systems will be grouped into two categories, namely, subject based information centre an participating institutions. Each centre will special in one particular subject and feed the information t NHDC. Thus scholars working in the field of hum-

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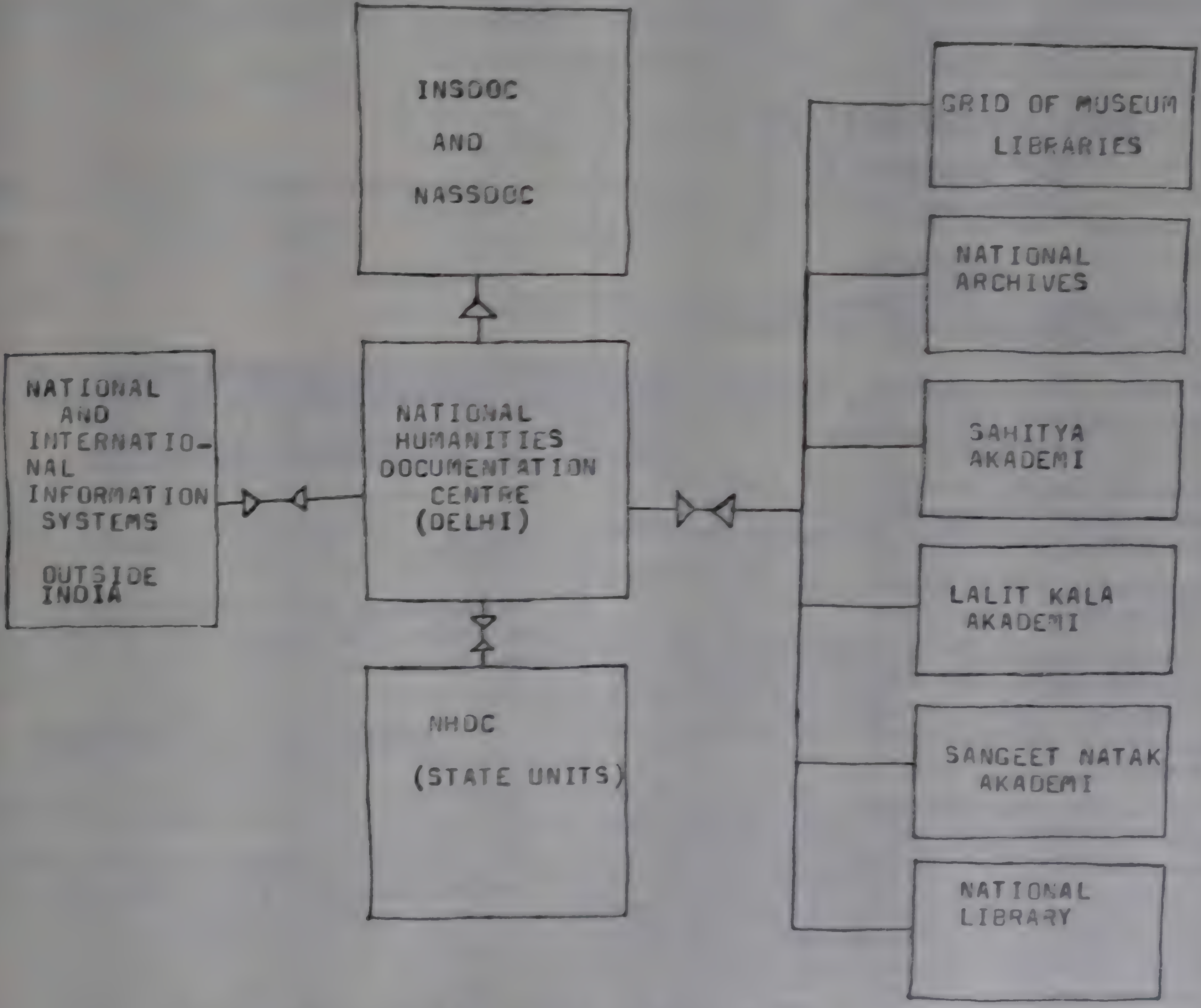
Library and Documentation Centre, Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi-110002 nities irrespective of their area of residence, will have access to the documents required by them wherever they may be located.

While surveying the nature of humanities we have observed that they make frequent use of past records. Archives, the storehouse of records that facilitate study of history, archaeology, literature, etc should therefore find an important place in the study of humanities. As such archives should be one of the main constituents of NHDC at the national level.

Growth of Archives

Archives were first thrown open to research workers after the French Revolution and ever since these have contributed to broadening the horizons of research itself. An organized society needs to preserve the documents it has produced for its own information. All the government machinery produces documents. But in the course of time, these documents lose their legal and administrative significance and are superseded by newer documents. But, all the same, they constitute useful precedents. They become documentary sources of historical value for the study of a particular society, providing the historian with a solid basis for his work.

The word 'Record' is derived from the latin word 'Recordari' for memory or rather heart, which was supposed to be the seat of memory. Before the art of writing was introduced, it was memorised. In India, the 'Smriti' as well as 'Shruti' traditions were prevalent. The entire Vedas were preserved through memory. With the progress of civilization, alphabets, clay tablets and other writing materials were developed. The Buddhist Sangha records and the Arthashastra of Kautilya provide us ample evidence of record keeping in India. The archives must be regarded as an asset and as such, must not only be safeguarded but also utilised.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National Humanities Documentation Centre—An Alternate Model

The National Archives of India (NAI) along with its state units acquire public and private records of permanent historical importance. NAI has in its custody non-current records including public records, private papers, rich collection of manuscripts, maps, prescribed literature, Indian Language newspapers of early Nineteenth century, etc. All these are important sources of data for historical, archaeological and literary research. Thus it is of foremost importance for proposed National Humanities Documentation Centre (NHDC) to have direct links with NAI.

However, there is an another area where I have some reservations on the NHDC model proposed by Ramaiah and Prafulla Chandra. It is with regard to participation by INSDOC and NASSDOC. These two institutions cannot be considered as actively participating links for NHDC. Certain subjects not identified as humanities may be studied in a humanistic way like science when the object of study is its philosophy and history. Similarly if an agricultural scientist wants to know the crop pattern in medieval India, the most reliable source for his research will be the archival sources of that time only. The dependence of Social Scientists on NHDC will also be of similar nature. So the dependence of INSDOC and NASSDOC will be more on NHDC and not the vice versa. As such the flow of participation will at best be one-way only. Instead, I feel a grid of cooperation should be developed among all the archives/libraries which are a rich repository of materials for study of humanities. It should have active participation of Tanjore Saraswati Mahal Library, Library of Asiatic Society of Bengal, Khuda Baksh Oriental Public Library, Salar Jung Museum, Maharaja Sawai Man Singh II Museum, Orissa State Museum (Bhubaneswar), Indian Museum (Calcutta), Baroda Museum and Picture Gallery, Nehru Memorial Museum an Library, etc. I shall therefore suggest the model as shown in the diagram (on previous page).

The research reports and studies using extensive archival data can later on be developed as data archives in the humanities. A well managed data archive can share the existing resources for multiple use and thereby enrich the NHDC with enhanced resources. ☐

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Education and Social Change

Laying down an agenda for education, and particularly higher education, Dr. Shanker Dayal Sharma, Vice-President of India observed, "In a period of unprecedented momentum of scientific advance and international interaction, our citizens must be induced to absorb the positive effects of new technology and modernity whilst yet adhering to the elevating elements of our ancient ideals and culture". Dr. Sharma was addressing the Annual Convocation of the Sardar Patel University. We are pleased to publish some excerpts from this inspiring address.

Convocation

Education, particularly higher education, is the obvious but crucially important instrument for nation-building. As Confucius has said :

> "If you are thinking of one year, plant rice,
>
> If you are thinking of a decade, plant trees,
>
> If you are thinking of a century, educate the people."

When we set about the task of higher education, we should be absolutely clear in our perception of the goals of education in the specific context of our nation's development. No doubt, one of the important aims of education would be to create the required range and nature of trained manpower assessed to be needed by different sectors of national growth. The entire educational apparatus must be geared progressively to fulfil the requirements of different phases of our growth in every sector—primary, secondary and tertiary. The aim must be to ensure that our country does not experience either paucity, or a surfeit, of trained manpower in any specific segment of our economy. The requirements of our country, as a free, democratic, secular, socialist, nation, aspiring for rapid development, entail a specific recipe for our educational institutions. Today's educational institutions must therefore be developed accordingly and must regulate themselves to give to the country the precise nature and quantum of trained manpower as projected by the requirements of our planned economy.

But more than in technical or economic terms, our educational institutions must also function to meet the needs of societal development to the extent or degree implicitly demanded by our polity. In our pluralistic society, in keeping with our ancient traditions of tolerance and understanding, citizens of our country must be helped, during their formative years, to understand the true meaning and values of secularism. Amidst wide ranging diversities of topography, climate, ethnicity, language, religion, local traditions, dress, food habits and vocations, our citizens must be helped by educational institutions to appreciate the supreme value of national unity and of the oneness of India that permeates all its diversities. In a polity highly stratified by diversities in income distribution and opportunities for possession of units of wealth, it is important that our citizens must learn to respect the concepts of socialism, democracy and the rule of law. In an increasingly mercenary and materialistic world, our citizens must be helped to realise the importance of the duty of every individual citizen to contribute to the national weal, and of having an unshakeable moral foundation for personal, social and national endeavour. In conditions affected by widespread poverty and want, and misplaced value on personal acquisition of wealth, our citizens must be taught to recognise the true meaning of selfless service and dignity of labour. In a period of unprecedented momentum of scientific advance and international interaction, our citizens must be induced to absorb the positive effects of new technology and modernity whilst yet adhering to the elevating elements of our ancient ideals and culture. In the throes of competitive politics, an understanding of the value of the Gandhian concept of Sarvodaya, of the insistence on purity of means and the effect of moral force, must be instilled in our citizens. Forty years after Independence, and in the generations that will follow, our citizens must, more than ever, be imbued with the flaming spirit of sacrifice, patriotism and nationalism that blazed through our freedom struggle. Our educational system must provide such stimulus as one of its cardinal functions. Failing in this, it would function without perspective or higher

(Continued on page 20)

CALENDAR OF EVENTS

Proposed Dates of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
May 9-June 4, 1988	Summer Course in Analysis and Probability	Topics to be covered are Probability Theory and Stochastic Processes, Fourier Analysis & Functional Analysis.	Indian Statistical Institute, Bangalore Centre.	T.S.S.R.K. Rao, In-charge, Summer School 1988, Stat-Math. Division, Indian Statistical Institute, R.V. College (P.O.) Bangalore 560 059
May 18-20, 1988	Conference on Recent Advances in Mathematical Techniques and Applications	Topics proposed to be discussed include Mathematical Physics, Mathematical Methods, Biofluid Dynamics, Chaos, Stability and Turbulence.	Dr. Y.S. Parmar Institute of Mathematical Sciences, Shimla.	Dr. J.R. Gupta, Organising Secretary, Dr. Y.S. Parmar Institute of Mathematical Sciences, Hainault, Shimla-171002
June 27-July 8, 1988	Short-term Intensive Training Programme on Abstracting & Indexing	To train the participants in the application of abstracting and Indexing methods and construction of an indexing language (Thesaurus).	National Institute of Small Industry Extension Training, Hyderabad.	Mrs. K. Subhashini, Course Director, NISIET, Yousufguda, Hyderabad-500045
July, 12-14 1988	**International Symposium on Recent Advances in Male Reproduction**	**The Symposium will focus on Molecular Biology of Inhibin, Androgen Binding, Protein Regulation of Fertility, Peptides in Testis Function and Steroidogenesis in Testis.**	**University of Hyderabad in collaboration with the Indian Society of Andrology.**	**Prof. P.R.K. Reddy, School of Life Sciences, University of Hyderabad, Hyderabad 500134**
September 26-28 1988	**International Conference on Welding Technology in Developing Countries**	**To provide an opportunity to scientists and technologists from developing and advanced countries to share their experiences in the area of Welding Technology.**	**University of Roorkee, Roorkee.**	**Prof. P.C. Gupta, Organising Secretary, International Conference on Welding Technology in Developing Countries, Department of Mech. & Ind. Engg., University of Roorkee, Roorkee-247667**
October 27-29, 1988	National Seminar on Statistics in Medicine, Health and Nutrition.	To discuss Data-Base and Analysis in Health and Nutrition—Present and Future.	Department of Statistics National Institute of Nutrition, Hyderabad.	Dr. K. Visweswara Rao, Organising Secretary, National Seminar on Statistics in Medicine, Health and Nutrition, Department of Statistics, National Institute of Nutrition, Indian Council of Medical Research, Jamai Osmania, Hyderabad-500 007
Dec. 15-17, 1988	National Conference on Fluid Mechanics and Fluid Power	To provide a forum for exchange of information on topics in flcid mechanics and design, research and development activities in areas like power generation, aerodynamics, fluidics, biomechanics, etc.	Harcourt Butler Technological Institute, Kanpur.	Dr. N.L. Kachhara, Organising Secretary, 16th National Conference on Fluid Mechanics and Fluid Power, Mechanical Engineering Department, Harcourt Butler Technological Institute, Kanpur-208002

NBE & Medical Education

The Governing Body of the National Board of Examinations (NBE) has advised the Union Government to designate the NBE as the National Board of Medical Examinations. This was disclosed by Dr. (Mrs) B.K. Maini, Executive Director of the NBE.

According to her, the prime objective of the NBE is to raise the standard of postgraduate medical education so that these degrees are respected by the public and employers as comparable to international standards of professional excellence.

Set up in 1976, the NBE and the National Academy of Sciences jointly conducted postgraduate examinations, till 1983, when the NBE started conducting its own examinations. The NBE conducts examinations in 39 disciplines at 14 centres in the country. The emphasis is on evaluating the candidate's ability and practical application of theoretical knowledge. The examination process is meant to find out how much a student knows rather than what he does not know.

The NBE had granted recognition to 89 medical institutions and hospitals by March, 1987. For general practitioners, the NBE conducts a postgraduate examination in family medicine. Three hospitals in Nepal have secured recognition from the NBE. Hospitals in Afghanistan, Kuwait and Qatar have also sought recognition.

Indira Gandhi Memorial Lecture

Prof. Yash Pal, Chairman of the University Grants Commission, who delivered the third Indira Gandhi Memorial Lecture at the Cochin University of Science and Technology said, "the only way to break the endless cycle of foreign collaboration and delayed indigenisation that is bogging Indian technology is to telescope the processes of learning and doing."

Prof. Yash Pal, made a strong plea that our scientists cross the most challenging of thresholds—the threshold of self confidence, and "do their own thing", even at the risk of reinventing the wheel. "It is good to reinvent the wheel", he said. "Because even when you reinvent, you create". Today, he said, technological developments are coming too thick and fast. Knowledge doubles every seven years. There is no premium in being merely the first to invent something. It is more important to live with what we can do and to make technology a vehicle of social change.

"The real world outside and the world of learning have to come together", said Prof. Yash Pal, and suggested that this is a concept totally compatible with our very Indian ideas about 'Karma' : being involved in doing something is more important than getting there. Unless we accept this sea change in our priorities and concentrate on indigenous creative activity, our scientists and technologists will merely remain "agents and touts of foreign technology", he felt.

UGC Assistance for Cochin University

The University Grants Commission has sanctioned Rs. 26.55 lakhs to the Cochin University of Science and Technology as part of the Departmental Research Support to the School of Marine Sciences. This was disclosed by Vice-Chancellor Dr. Harsh K. Gupta recently.

An assistance of Rs. 12.50 lakhs has also been extended by the UGC for starting a Post-M.Sc. course in Atmospheric Sciences under the Physical Oceanography and Meteorology division of the School of Marine Sciences. This course will be conducted in collaboration with the Departments of Computer Science and Mathematics & Statistics.

The UGC has sanctioned a special assistance of Rs. 10 lakhs for the purchase of books and journals during the VII Plan period.

Also, the UGC has approved University's proposal for the construction of one more hostel for lady students and has agreed to make available Rs. 17 lakhs.

In addition, The Ministry of Human Resource Development has also sanctioned Rs. 10 lakhs for modernising the laboratories of the Ship Technology Department of the University. This assistance is in addition to a sum of Rs. 10 lakhs sanctioned by the Government of India for the same purpose.

Japanese Language Prizes for JNU Students

Five out of seven prizes in the 9th Japanese Language Speech Contest have been bagged by the students of Jawaharlal Nehru University. The Contest was organised by the Mombusho Scholars Association of India (MOSAI) in collaboration with Japan Foundation on the occasion of Japan Festival in India. According to an announcement by MOSAI, all the three prizes of the Junior Group were won by Deepshikha Bammi, Sunita Batra and Shravan Vashisth and the first prize in Senior Group went to Mr. Samir—all from JNU.

Workshop on Human Development & Family Studies

The Department of Child Development of the M.S. University of Baroda proposes to organise a summer workshop on "Demystifying research in human development and family studies" from May 16th-30th, 1988. The objectives of the workshop are : (1) to enable young research scholars in Human Development and Family Studies to develop competence in preparing sound research proposals; (2) to provide young scholars guidance in selecting research topics of social relevance and to also provide systematic feedback and subject matter experience and consultation/help to young scholars in developing research proposals; and (3) to strengthen the research in specific areas of Human Development and Family Studies in terms of conceptual framework, methodology, and statistical analysis, as these have been repeatedly observed to be weak in our survey of Indian researches in this area of study.

The workshop will be inaugurated by Professor A.K. Jalaludin, Joint Director, NCERT, New Delhi. Dr. Kamaliniben Bhansali, Vice-Chancellor, SNDT Women's University will preside. Over 30 participants from different parts of the country are expected to attend the workshop.

Prof. Viswamitra Presented Birla Award

The R.D. Birla award for medical research has been presented to Prof. M.A. Viswamitra, Chairman, Department of Physics, Indian Institute of Science, Bangalore for his work in Molecular Biology. Dr. Viswamitra has made a major breakthrough in developing sequence specific anti-cancer drugs.

A pioneer in crystallography in India, Prof. Viswamitra was the first to crystalise deoxytetranucleotide, leading to the discovery of a sequence-dependent fine structure in DNA helical fragments. He is also credited with doing X-ray studies on the molecular structures of several key intermediates in metabolic processes of the cell.

Instituted by the Rameshwardas Birla Smarak Kosh the award consists of Rs. one lakh besides a memento and a citation. The Kosh was established in 1979 under the aegis of the Bombay Hospital Trust to aid students and researchers in the medical field.

Khalsa College Seeks Residential Varsity Status

The Khalsa College, Amritsar celebrated its 96th foundation day recently. Speaking on the occasion Mr. Gurbax Singh Shergill, the Principal of the College, sought residential university status for the College. He referred to the need of establishing a permanent fund for the upkeep and maintenance of the College building and said it was obligatory for old students the world over to contribute to the fund.

The College proposes to start an "Institution of Agricultural Studies and Research" besides introducing new post-graduation classes in subjects ranging from food technology to computers.

On the occasion, 17-students, now occupying high positions in society were honoured. They included Maj. Gen. Trilok Singh, Chief of an Army Corps, Secretary, Health, S.S. Boparai, Deputy Commissioner Sarabjit Singh and Mr. G.R. Sethi, a journalist besides others.

Research Scientists Awards 1987

The University Grants Commission has announced the selection of 113 candidates for the award of Research Scientists positions under categories A, B, and C, corresponding to the grade of Lecturer, Reader and Professor in universities, in different disciplines. These positions have been created by the UGC with a view to giving a deliberate impetus to full time research in universities.

News from Agril. Varsities

US Assistance for Agrl Varsities

The U.S, Government has awarded research grants totalling Rs. 26 lakhs to the agricultural universities in Andhra Pradesh, Bihar and Maharashtra for taking up agro-industrial research and development projects.

The Rs. 827,400 grant to the Andhra Pradesh Agricultural University, Hyderabad, for a three-year period would help study food preservation problems.

The Rajendra Agricultural University, Pusa, Samastipur would get a three-year grant of Rs. 601,330 to develop a safe disposal system of urban and industrial organic wastes.

The College of Agricultural Technology, under the Marathwada Agricultural University, Parbhani, has been given a five-year grant of Rs. 11.60 lakhs to devise new sources of low-cost industrial gums which can be used as adhesives in industrial processes and products.

HAU Kisan Mela

A 2-day Annual Farm Fair of Haryana Agricultural University was recently held at the research farm of the University. Thousands of farmers from Haryana and adjoining states participated in the Mela. During this period the visiting farmers were taken on guided visit of the research farm by the scientists where they were shown the bumper standing crops like wheat, barley, gram, rape-seed, mustard, barseem and sugarcane raised with the latest scientific techniques. They were apprised of the latest methods of sowing, hoeing, seed treatment, soil reclamation, judicious use of water and fertilizers, plant protection measures, proper handling of farm machinery and implements etc., of different Kharif crops. They were also apprised of the techniques of inter-cropping, conserving soil moisture, dryland farming, etc. An Agro Industrial Exhibition was also organised on the occasion in which farm machinery and implements, insecticide-pesticides, and other farm use material were displayed.

Product Development from Bivalve Meat

The Indian Council of Agricultural Research (ICAR) has sanctioned a research project entitled 'Product development from bivalve meat—micro-biological and biochemical assessment of their keeping quality' to the Department of Fish Processing Technology of the Kerala Agricultural University with a financial outlay of Rs. 3,26,600. The project to be completed within three years under the leadership of Mr. D.D. Namboodiri, aims at developing edible products from bivalve meat and fixing biochemical and microbiological standards for such products.

Ethopian Scientists Visit HAU

A high level Ethopian delegation led by Dr. Asfoaw Zelleke, Academic Vice-President, Alemeya University of Agriculture, visited the Haryana Agricultural University recently. The Ethopian scientists visited the experimental farm of H.A.U. and also saw researches in Animal Breeding, Horticulture, Farm Forestry and Veterinary Science. The visiting scientists said that they would like their university, established in 1985, to be developed on the pattern of Haryana Agricultural Universty, as it had an excellent system of transfer of technology and remarkable infrastructure for teaching, research and extension. The delegation also held discussions with the Vice-Chancellor, Dr. Har Swarup Singh and senior members of the Faculty of the University.

News from Abroad

Training for Agricultural Development

The Food Production and Rural Development (FPRD) Division of the Commonwealth Secretariat, London has issued a revised edition of *Training for Agricultural Development : A Directory of Commonwealth Resources.* The main purpose of the directory is to help promote collaboration between commonwealth countries through the use of each other's facilities to train the specialist manpower required for the economic and social development in the field of agricultural and rural development. Only the institutions providing training programmes in the field of agriculture, veterinary medicine, horticulture, freshwater fisheries and aquaculture, food science, forestry, biological sciences and relevant ancillary disciplines are listed. The courses include :

- training programmes for extension workers and peasant farmers in the public and private sectors;
- training programmes for post-secondary education leading to certificates and diplomas or other awards which in some countries are

WORDS OF WISDOM

"How we choose to look at the world makes such a big difference, really it does. If we look at it through timid eyes, it's a frightening world. If we look at it darkly, we find nothing but gloom. If we look at it cynically, we're never at a loss for things to criticise. We can be against the world or we can be for it. And when we're for it, it can be a wonderful place. Not every minute, of course, or even every day, but certainly most of the most."

(From Graham Porter's, "A Harem in the House") provided by non-university institutions;

- general education programmes, e.g. first degrees, which embrace many disciplines;
- higher degree programmes (Master's and Ph.D.) in specialized fields which in some countries have research institutions associated with them for the purpose of providing facilities for Ph.D. courses;
- short training / workshop programmes mostly for higher level management and policy makers.

In addition to the institutions in different commonwealth countries and the courses offered by them, the Directory also gives details about international institutions and organisations which provide training programmes and sponsorship to member countries.

Further details may be had from The Director, Food Production & Rural Development, Commonwealth Secretariat Division, Marlborough House, Pall Mall, London SW1Y 5 HX.

Two-Crop Farming

Australian scientists are researching a farming system which allows two crops to be grown simultaneously on the same plot. One has the potential to save the farmer money which is now spent on nitrogen fertilisers, the other provides growers with a conventional source of cash return.

The farming system known as alley cropping, involves the planting of a cereal crop such as maize or sorghum between alleys of a legume crop (called leucaena), which collects nitrogen from the air and transfers it into the soil in large quantities. It involves the timely pruning of the fast-growing legume throughout the growth cycle of the cereal crop with the farmer leaving the cuttings in the paddock to decompose, and to mulch and feed the complimentary crop. The mulch enhances the fertility of the soil by releasing extra nitrogen, improving crop productivity and at the same time reducing soil erosion.

Savings of between 40 kg. and 80 kg. (98.8 lb and 197.6 lb) of nitrogen fertiliser per hectare have been recorded.

The work is being done at Griffith University in Brisbane, Queensland, and also at the Commonwealth Scientific and Industrial Research Organisation's (CSIRO) division of tropical crops and pastures, also based in Brisbane.

One of the scientists involved in the research at Griffith University is Mr. Xu Zhi-Hong, from the Institute of Soil Science at the Academia Sinica in Nanjing, China. Mr. Xu, who is working for a PhD degree while in Queensland, said the alley cropping system of farming was likely to be most effective in tropical and sub-tropical climates.

We Congratulate.......

(1) Dr. K.M. Marimuthu who has been appointed as Vice-Chancellor of the Bharathiar University, Coimbatore.

(2) Dr. S. Muthu Kumaran who has been appointed as Vice-Chancellor of the Bharathidasan University, Tiruchirapalli.

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Book Review

Very Readable & Instructive

Mital, K.V. History of the Thomason College of Engineering (1847-1949). Roorkee, University of Roorkee 1986. p.285.

Prof. K.V. Mital deserves all the kudos for having attempted to write the history of the Thomason College of Engineering, which flowered into the University of Roorkee on 25 November, 1949, exactly 102 years after its establishment as an institution for the education of civil engineers to meet the requirements of the Government for surveys, roads, bridges, railways, irrigation works, application of water power, navigation etc.,—objectives for which it was "impossible to provide European engineering skill". Although the emphasis in the beginning was on raising a body of civil engineers from amongst the Indians, the shape of the College that emerged became somewhat different and more comprehensive. Three departments were opened. The first Department was to train sub-assistant civil engineers, and was open to both Indians and Europeans. The second was open only to European non-commissioned officers and soldiers and trained them as overseers. The third was exclusively meant for Indians and provided instruction in surveying, levelling and drawing through the medium of Urdu.

The important feature of the college was its totally residential character. The students could thus be kept under the college discipline all the 24 hours, and not only their curricular but also extra-curricular activities could be programmed. This gave the Roorkee College, from its inception and all through the century of its existence, a unique opportunity to build and maintain traditions of discipline and emotional involvement so characteristic of it.

As Lt.Governor of the erstwhile North Western Provinces, James Thomason (1804-1853) was primarily responsible for the establishment of the college and it was but appropriate that the college was named after him after his death in 1853. The L.G. was remarkably ahead of his times and practical in outlook as regards the concept of education fit for the educands of the college. He wrote in one of his despatches: "Education does not consist in mere book learning, which will pass off to advantage in a set examination. It consists also in the habits of industry, method, observation and practical skill, which can be best acquired amongst such works as those exist at Roorkee." Thus an important feature of the methodology of teaching which the Roorkee College developed was involvement in local needs and full use of locally available facilities. In the process, the college developed the practice of holding monthly tests in topic under study according to a strict schedule laid out in the College Almanac which was a datewise schedule of work for the year. Marks in these tests were given 25% weightage in the final results and were added proportionately to the marks obtained in the annual examination. To ensure that within the limits tested by his paper the pupil had gained a fair knowledge, it was required of the unsuccessful examinee that he works out the paper fully and accurately after further instruction and study. In the field of Applied Mechanics particularly, it was sought to ensure that the theoretical instruction of of basic principles was balanced with the practical knowledge of the engineering art.

In addition to academic inputs, due importance was attached to the provision of facilities for intellectual relaxation and outdoor healthy physical recreation to students and

EMBASSY OF THE REPUBLIC OF IRAQ

NEW DELHI

Vacancies in the University of Mosul, Mosul-Iraq.

CORRIGENDUM

Qualification required for ARCHITECTURE vacancies published on page 24 of University News dated March 7, 1988, may kindly be read as Ph. D. instead of M. Arch.

the fostering of games and sports, as an essential ingredient of the students' education and the social life on the campus. Thus while the "native" students were required to undergo physical training with a view to developing "a capacity for personal exertion", the soldier-students were expected to make, by their, own labour, a garden in the area adjoining their barracks, to furnish an agreeable object of interest to the students, to supply the barracks with fresh vegetables and to improve the general appearance of that part of the college ground."

It is pertinent to note here that this very commendable symbiotic relationship with ground reality which the college maintained emanated from its intimate connection with the military. As observed by the learned author, all its principals initially were military engineers; much of its senior and middle level staff used to be drawn from the army; about half its students passing through the upper subordinate class (till 1895) were soldiers and about a third through the engineer class (till 1874) were soldiers. The general thinking, the pattern of social life, the concept of discipline, all these were permeated by the military outlook. While it influenced the growth of a practical, down-to-earth methodology of education, it tended to generate strains and disharmony in the social relationship. To quote the author, "There was an almost impenetrable social barrier between the 3 classes. Students of one class did not mix or fraternize with those of the other. The engineer class students were supposed to maintain an attitude of dignified superiority towards the other 2 classes, while the latter were expected to behave with due respect in the presence of the former."

Though the division of the engineer class into the Indian and English sections was formally abolished in 1895, the distinction between the Indians and the Anglo-Indians on the social plane continued. The Engineer Mess remained exclusively Anglo-Indian. While the Anglo-Indians lived in bungalows, the Indians were accommodated in a barrack. D.D. Jaini (1920 batch) recalls that the rooms (for Indians) used to be unfurnished, and students were required to make their own arrangements... For European and Anglo-Indian students, a separate building consisting of furnished single-seated rooms was provided. As reminisced by K.N. Kathpalia, a little 'satyagraha' was needed to give the policy of segregation a final push over. What form this 'satyagraha' took may best be left for the curious reader to discover from the very readable and instructive text, so painstakingly put together by a devoted and emotionally-involved scholar.

Amongst the eminent practical engineers produced by the Roorkee College, may be mentioned the names of Kunwar Sain, A.C. Mitra, P.L. Verma. G. Pande, L.P. Bhrgava, Karnail Singh, Yadav Mohan, H.P. Sinha, D.C. Baijal, M.R. Chopra, who earned international repute as experts in their various fields and brought glory to their alma mater, which however, "stayed only as an efficient professional training school." As observed by Prof, Mital, it did not become a centre of engineering research and learning. Its ambition of becoming a beacon of engineering knowledge remained unfulfilled.

This came to be fulfilled on 25 November 1949, when curtain fell on the Thomason College and a new era in its history began with the inauguration of the University of Roorkee,

The 40th anniversary of the University is round the corner, and it is an appropriate moment to assess its achievements and failures. Doubly so, when the nation is engaged in the exercise of finding new paths in the field of human resource development.

—**G.B.K. Hooja**

Former Vice-Chancellor, Gurukula Kangri Vishwavidyalaya, 5, Abul Fazal Road, New Delhi-110001

EDUCATION AND SOCIAL CHANGE

(Continued from page 13)

national purpose and, in fact, may cause great harm in place of great good.

Sardar Patel said : "Everyone admits that the educational system is deficient and outmoded...A **revolution is badly wanted in this field**". And Bapu writing in the 'Harijan' said : **"I would revolutionise college education and relate it to national necessities...'The aim of University education should be to turn out true servants of the people who live and die for the country's freedom".**

Sardar Patel University, I believe, is doing very salutary work in this respect. Established on the birth anniversary of Sardar Vallabhbhai Patel, Vallabh Vidyanagar is making a valuable contribution to accelerate the process of rural regeneration by application of modern arts, science and technology to rural requirements. The University is also striving, with success, to nurture the growth of appropriate individual, social and national attitudes amongst all students that pass its portals.

The thoughts in the great spiritual leader Narsi Mehta's ethereal poem should ever be in our minds —as they were in Bapu's :

'वैष्णव जन तो तेने कहिए
जे पीड पराई जाणे रे,
पर दु:ख उपकार करे तोये,
मन अभिमान न आणे रे ।'

It is this philosophy of understanding, humanism, compassion and service that I feel, must inspire the citizens of modern India. I trust, it would light your path in the years and decades to come. □

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertations as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

CURRENT DOCUMENTATION IN EDUCATION

A List of Select articles culled from periodicals received in the AIU Library during March, 1988

EDUCATIONAL PHILOSOPHY

Berard, Robert. Frederick James Gould and the transformation of moral education. *British J. Ednl Studies* 35(3), 1987, 233-47.

Dietrich, Theo. Peter Petersen's educational philosophy and its importance for the present. *Education* (36), 1987, 109-22.

Ediger, Marlow. Teaching as Philosophy of education. *The Edn Q* 39(3), 1987, 9-11.

Thatcher, Adrian. Learning to become persons ? Three approaches examined. *British J Ednl Studies* 35(3), 1987, 248-59.

EDUCATIONAL PSYCHOLOGY

Washington, Sushma and Rastogi, Mukta Rani. Introversion-extraversion and intellectual performance. *Indian Ednl Rev.* 22(3), 1987, 149-54.

EDUCATIONAL SOCIOLOGY

Abedi, Jamal and Benkin, Ellen. The effects of students' academic, financial and demographic variables on time to the doctorate. *Res. Hr. Edn.* 27(1), 1987, 3-14.

Arora, G.L. Acculturating role of education. *The Edn. Q.* 39(3), 1987, 3-5.

Srivastava, P.N. Educate people to eradicate poverty. *Yojana* 32 (1 & 2), 1988, 29-31.

EDUCATIONAL PLANNING

Chauhan, C.P.S. Educational challenges of 2001 A.D. : Complexities and dilemmas. *The Edn. Q.* 39(3), 1987, 6-8.

Gupta, C.P. Towards a new education system. *The Edn. Q.* 39(3). 1987, 14-20.

Morrell, Louis R. Strategic planning for colleges and universities. *Coll. Bd. Rev.* (140), 1986, 21-3, 36.

EDUCATIONAL ADMINISTRATION

Astin, Alexander W. Competition or cooperation ? : Teaching teamwork as a basic skill. *Change* 19(5), 1987, 12-19.

Perry, Pauline, Accountability and inspection in higher education. *Hr. Edn. Q.* 41(4), 1987, 344-53.

Reynolds, Philip. Decision-making in a contracting university : The case of the University of Lancaster, 1979-1985. *Minerva*, 25(4), 1987, 397-422.

Wright, Tony. An experiment in staff development at a distance. *Open Learning* 3(1), 1988, 3-12.

TEACHERS AND TEACHING

Pandey, Saroj. Teacher morale in relation to certain demographic variables. *Prog. Edn.* LXII (3), 1987, 66-70.

EDUCATIONAL RESEARCH

Negi J.S. Sample size for the research activities. *Prog. Edn.* LXII (7), 1988, 166-8.

EVALUATION

Johnson, Jocelyn J. and Knight, Kim H. College level examination program scores as predictors of grade point average. *Ednl. Psy. Measurement* 47(4), 1987, 1031-36.

Kane, Michael T. On the use of IRT models with judgemental standard setting procedures. *J. Ednl. Measurement* 24(4), 1987, 333-45.

Krus, David J. and Helmstadter, Gerald C. The relationship between correlational and internal consistency notions of test reliability. *Ednl. Psy. Measurement* 47(4), 1987, 911-15.

Pillai, J.K. Appraisal of teacher effectiveness. *New Frontiers Edn.* 17(4), 1987, 57-64.

Resnick, Daniel P. and Goulden Marc. Assessment, curriculum and expansion : A historical perspective. *New Directions Hr. Edn.* (59), 1987, 77-88.

Shannon, Gregory A and Cliver, Barbara A. An application of item response theory in the comparison of four conventional item discrimination indices for criterion-referenced tests. *J. Ednl. Measurement* 24(4), 1987, 347-56.

Wood, Robert E. and Locke, Edwin A. The relation of self-efficiency and grade goals to academic performance. *Ednl. Psy. Measurement* 47(4), 1987, 1013-24.

ECONOMICS OF EDUCATION

James, Estelle and Benjamin, Gail. Educational distribution and income redistribution through education in Japan. *J. Human Resources* 22(4), 1987, 469-89.

Sailabala Debi. Private rate of return to higher education in Orissa. *Indian Ednl. Rev.* 22(3), 1987, 63-77.

VOCATIONAL EDUCATION

Khullar, K K. Vocationalisation of education. *The Edn. Q.* 39(3), 1987, 21-88.

EDUCATIONAL JOURNALISM

Joshi, R.S. Qualities and skills needed by writers/reporters on education. *Prog. Edn.* LXII (7), 1988, 163-5.

ADULT EDUCATION

Meueler, Erhard. The art of going along with people—A study in adult education. *Education* (36), 1987, 60-74.

DISTANCE EDUCATION

Asch, David and Smith, Rosemary. Management education : Another way forward ? *Open Learning* 3(1), 1988, 23-8.

Enckevort, Ger van and Leibbrandt, Gottfried. The Open University of the Netherlands. *Open Learning* 3(1), 1988, 18-22.

Farnes, Nick. Open university community education : Emancipation or domestication ? *Open Learning* 3(1), 1988, 35-40.

Lane, Andrew and others. Open learning down on the farm. *Open Learning* 3(1), 1988, 29-34.

Markowitz, Harold Jr. Financial decision making—calculating the costs of distance education. *Distance Edn.* 8(2), 1987, 147-61.

Mulenga, Freda M. Distance education at the University of Zambia. *Open Learning* 2(3), 1987, 39-40.

Naidu, Som. Faculty involvement in instructional materials development for distance study at the University of the South Pacific. *Distance Edn.* 8(2), 1987, 176-89.

Sahoo, P.K. and Bhat, V.D. Students' attitude towards correspondence system of education. *J. Indian Edn.* 13(2), 1987, 28-33.

Woodley, Alan. Graduation and beyond. *Open Learning* 3(1), 1988, 13-17.

COMPARATIVE EDUCATION AND COUNTRY STUDIES

Moodie, Graeme C. Le Roi est Mort; Vive le Quoi ? Croham and the death of the UGC. *Hr. Edn. Q.* 41(4), 1987, 329-43.

Pereira, Nicolau. New educational trends in Goa. *New Frontiers in Edn.* 17(4), 1987, 46-56.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities.

BIOLOGICAL SCIENCES

Environmental Sciences

1. Venkatanarayana Reddy, J. *Chemical reactions relating to fluorosis : Binding and defluoridation studies.* Madras.

Biology

1. Ashok Kumar. *Molecular composition and dynamics of light harvesting antenna (Phycobilisome) in cyanobacterium Spirulina platensis.* JNU. Dr. A.K. Varma.

2. Chaturvedi, Shobha. *A study of the role of peroxidase in endocrine hormonal regulation.* Devi Ahilya. Dr. M.M. Laloraya.

3. Khan, Muzaffar Ahmed. *Studies on ribulose 1,5-bisphosphate carboxylase from triticale.* JNU. Dr. K.C. Upadhyaya.

4. Mohammad Nehal. *Biochemical changes in red blood cells treated with insulin and thyroid hormones.* JNU. Prof. (Mrs) Najma Zaheer Baquer.

5. Warrier, Radhika. *Regulation of macromolecular synthesis and related processes in bacteria.* Madurai.

Marine Biology

1. Mahobia, Gopal Prasad. *Studies on the Indian cichlids.* CUST. Dr. K.C. George.

2. Sarasu, T N. *Larval biology of the spiny lobsters of the genus Panulirus.* CUST. Dr. M.J. George.

3. Unnikrishnan, V.P. *Texture, mineralogy and provenanee of the beach sands of South Kerala.* CUST. Dr. Y.L. Dora.

Biophysics

1. Vyas, Ratankumar Mangilal. *Biophysical and biochemical studies on the mechanism of action of gossypol acetic acid : A male antifertility agent.* Panjab.

Biochemistry

1. Alladi, Srilatha. *Plasma lipid lowering effect of wheat protein in the diet compared with casein and soy protein isolate.* Madras.

2. Dhayakani, J. *Regulation of alkaline phosphatase in mammalian tissues.* Madras.

3. Lata, A. *Studies on topical application of B-aminopropionitrile on polyvinyl alcohol sponge induced granulomas in rats.* Madras.

4. Majumdar, Sekhar. *Studies on genetically blocked mutants as an approach to the problem of biosynthesis mycobacillin by Bacillus subtilis.* Calcutta.

5. Nalini, S. *Studies on the effect of cereal derived proteins in the diet on tissue lipids and membrane composition in relation to the plasma lipid profile.* Madras.

6. Ramanujam, K S. *Lipid and glyco-protein changes in chronic alcohol intoxication, controlled by 'SKV' therapy.* Madras.

7. Rangaraju, M. *Biochemical studies on experimental urolithiasis.* Madras.

8. Reeni Gilbirt, C. *Studies on plasma and tissue lipid changes with dietary substitution of animal and protein with reference to rice protein.* Madras.

9. Sivanandham, M. *Studies on radioimmuno-localization of gallium-67 in dalton's lymphoma.* Madras.

10. Yadavalli, Venkata Subrahmanyam. *Studies on treatment of strong industrial wastes using anaerobic contract filter.* Madras.

Microbiology

1. Krishnamurthy, Rajkumar. *The study of mycotoxins from contaminated food in clinical cases of infantile liver diseases and on experimental rat.* Madras.

2. Moses, L. George. *A study on the epidemiology, diagnostic procedures, humoral responses and experimental infection of human giardiasis.* Madras.

3. Parija, Subhash Chandra. *Immunology of parasitic infections with particular reference to serodiagnosis of amoebic liver abscess at primary health centre level.* Madras.

4. Raghuraman, R. *On some aspects of genital candidiasis.* Madras.

Botany

1. Anjaiah, N. *Effects of salinity on osmoregulator solutes in Atriplex griffithii Mog.* Bhavnagar. Dr. A.J. Joshi.

2. Biswas, Subrata. *Physiological studies of some edible gill fungi.* Calcutta.

3. Dangar, Tushar Kanti. *Studies on plant hormones in relation to nitrogen fixation in root nodules of some leguminous plants and in culture of the microsymbionts.* Burdwan. Prof. Pritisadhan Basu.

4. Ganesan, T. *Effect of systematic fungicides on soil microbiological and chemical nature. Madras.*

5. Garg, Jolly. *Studies on growth and physiology of some latex yielding plants.* Rajasthan. Prof. Dalbir Singh.

6. Gowthaman, S. *Diatom flora of the surface layers of sediments from the Indian Ocean Region.* Madras.

7. Jaffar Hussain, A. *Nitrogen use efficiency of AC_3 (rice) and AC_4 (sorghum) plants.* Madras.

8. Jalaluddin Shariff, D. *Studies on the retina and retinomotor responses in fresh-water teleost, Tilapia mossambica.* Madras.

9. Jayapal Gowdu, B. *Studies on some biological aspects of fungal associates on groundnut rust, Puccinia arachidis Speg.* Madras.

10. Jojita Devi, Rajkumari. *Orchids from Manipur : A study of 150 taxa.* Manipur. Dr. J. Ghatak.

11. Mallesham, C. *Palaeobotanical and palynological study of some tertiary deposits in the East Coast of South India.* Osmania.

12. Masilamoney, P. *Taxonomy, anatomy and palynology of South Indian Ficus.* Madras.

13. Menon, Hema. *Dinitrogen fixation and ammonia assimilation in some diazotrophic bacteria.* Madras.

14. Muralikrishna, K. *Effect of fungal extracts, plant products and chemicals in root meristems of Allium cepa L.* Osmania.

15. Nagi Reddy, G. *Studies on ammonia assimilation and its regulation in a cyanobacterium, Gloeothecale Sp.* Madras.

16. Rahman, Sanjida. *Laboratory cultivation and nutrition of myxomycetses : Associations with bacteria.* Madras.

17. Rangaswamy, M. *Embryology of the family amaranthaceae.* Madras.

18. Sinha, Subodh Chandra. *Ethnobotanical study of Manipur.* Manipur. Dr. D.B. Deb.

Agriculture

1. Bedi, Charanjit. *Genetics of quality of mungbean and lentil.* PAU.

2. Choudhary, Shiv Nandan. *Studies on influence of pyrite-enriched organic wastes and pyrites on iron and sulphur nutrition on crops.* Rajendra Agrl.

3. Gholve, Shrihari Ganpat. *Studies on effects of irrigation scheduling along with use of antitranspirant and mulching under grade levels of nitrogen and phosphate on growth, yield and quality of summer groundnut, Arachis hypogaea L. variety F.S.B. 7-2.* MP Agrl. Dr. B.V. Mohite.

4. Raman, K. *Studies on host plant interactions in the dusky cotton bug, Oxycarenus laetus Kirby (Insecta : Hemiptera: Lygaeidae).* Madras.

5. Vijayan Nair, N. *Biomaterial investigations in Saccharum officinarum L.* Madras.

Zoology

1. Amaldoss, G. *Structural analysis of the male reproductive tracts of Spodoptera litura Fabricius and Heliothis armigera Hubn and the role of their secretion in sperm activation and migration.* Madras.

2. Chakrapany, S. *Studies on marine invertebrates, Scyphomedusae of the Indian and adjoining seas.* Madras.

3. Choudhary, Bhagwat Singh. *Host of preference and management of Callosobruchus chinensis Linn, by some non-toxic substances.* Durgawati. Dr. R.R. Rawati and Dr. S.C. Pathak.

4. De, Rina. *Eco-toxicology of large bandicoot rat, Bandicota indica Bechstein (Rodentia : Muridae).* Calcutta.

5. Dey, Rajat Kanti. *Studies on some histological, histochemical and biochemical aspects of strongyluris bengalensis.* Burdwan. Prof. Giridhari Majumdar and Prof. Sudhangsu Kr. Ghoshal.

6. Ghosh, Ajit Kumar. *Studies on male reproduction in cadmium treated toad. Bufo melanostictus.* Calcutta.

7. Jamuna Bai, K.S. *Studies on the biology of metacercaria of Microphallus, Madras.* Madras.

8. Jothinayagam, J.T. *Studies on cephalopoda of the Madras Coast.* Madras.

9. Kamatchiammal, R. *Toxicity of pulp and paper mill effluent to fresh water fish, Tilapia mossambica Peters.* Madras.

10. Krishnan, S. *Studies on some aspects in the biology of the fiddler crabs of the Adyar estuary and Adyar backwater.* Madras.

11. Mallick, Minakshi. *Distribution and control measure of culicinae mosquito fauna of Burdwan District with special emphasis on Anopheles phillippinensis.* Burdwan. Dr. Mohitosh Banerjee and Dr. Sukumar Das.

12. Mandal, Malaykumar. *Studies on microporidan parasites of the silkworm and agricultural pests.* Calcutta.

13. Mariappan. *Studies on the dynamics of immature populations of Culex Quinguefascidatus Say, 1983 (Diptera : Culicidae) under central pressure.* Madras.

14. Muralidhar, B. *Genetics of Naikpods tribal population of Andhra Pradesh.* Osmania.

15. Padmanabhan B. *Thrips-fungus interactions with reference to tropic diversity and associated adaptive strategies in some Mycophageus tubulifera (Thysanoptera : Insects).* Madras.

16. Pal, Bireswar. *Nematodes of vertebrate animals of River Ganga.* Burdwan. Prof. Giridhari Majumdar.

17. Pal, Sukumar. *Studies on the immunological aspects of amoebiasis with special reference to its antigenic components.* Calcutta.

18 Prasadmurthy, Y.S. *Some studies on endocrine regulation of cocyte recruitment and development in the frog, Rana cyanophlyctis (SCHN).* Karnatak. Dr. S.K. Saidapur.

19. Puttaraju, H.P. *Cytogenetic observations on some species of oriental mosquitoes.* Bangalore. Dr. S. Honnaiah.

20. Rajan, S. *Biology of Madras Drinking Water Supply System and health.* Madras.

21. Rajput, Kailash Babu. *Studies on the mosquitoes (Diptera : Culicidae) Manipur.* Manipur. Dr. T. Kameshwar Singh.

22. Ramachandra Rao, Kambadur. *A taxonomic study of the sub family Jasinae sensu distant (Homoptera : Cicadellidae) from Khasi Hills, Maghalaya.* Madras.

23. Ramani Bai, P.S. *Ecotoxicological studies on the coastal ecosystem of Madras.* Madras.

24. Ray, Dhilankumar. *Studies on the gut infusorians of Indian anurans.* Calcutta.

25. Ray, Reba. *Some aspects of piscine nematodoses and transcuticular absorption.* Burdwan. Prof. G. Majumdar and Dr. Namai Ch De.

26. Ummey Shameem. *Morphology and biology of some larval trematodes from molluscs of Chilka Lake.* Andhra.

Medical Sciences

1. Adibatti, Ningappa Adiveppa. *Ceropegia juncea Roxb : A pharmacological study.* Madras.

2. Chattopadhyay, Bhaskarprasad. *Pulmonary function tests in industrial workers of Calcutta having chronic obstructive pulmonary diseases.* Calcutta.

3. Huralikuppi, Jagannath Chanabasappa. *Studies on the inter-relationship between hypoglycaemic and anti-diabetic activity with focus on indigenous plants.* Madras.

4. Jeganathan, P.S. *Influence of methanol on rat brain monoamine levels.* Madras.

5. Malathi, K. *Observation of salmonellosis of children in the Institute of Child Health and Hospital for Children, Madras.* Madras.

6. Mohan, N. *Haemoglobinopathies and thalassaemia syndromes-Clinical cytological, biochemical and genetic aspects.* Madras.

7. Mahan, V. *Studies on young diabetic patients in the tropics with special reference to Mody and fibrocalculous pancreatic diabetes.* Madras.

8. Nataraja, K.V. *An investigative study of the anti-inflammatory activity of the bark extracts of Saraca indica Linn (Ashoka).* Madras.

9. Surendra M. *Observations on the paris ventralis of the lateral genticulate nucleus in some primates.* Madras.

10. Surya Prabha, P. *Genetic and biochemical aspects of essential hypertension and associated conditions.* Osmania.

Animal Husbandry

1. Gupta, Kamlesh. *Genetic analysis of purebred jersy cattle herds in Himachal Pradesh.* HP Krishi. Dr. J.S. Dhillon.

2. Shrivastav, Ashok Kumar. *Studies on genetic and phenotypic parameters of some economic traits in cattle and buffaloes.* Birsa Agrl.

JOINT ADMISSION TO*

Three Semester M.Tech. Programme, July 1988

(with Scholarship)

OF

INDIAN INSTITUTE OF TECHNOLOGY BOMBAY, KHARAGPUR & MADRAS

GENERAL : Applications in prescribed form are invited for admission to the three-semester M.Tech. programme offered by the three institutes and M. Arch. MCP and MRP programmes offered at IIT Kharagpur.

DISCIPLINES : Disciplines and areas of specialisation for the Master's programmes of the three IITs are given in the information brochure which wiil be sent along with the application form.

MINIMUM QUALIFICATION FOR ADMISSION : The candidates for admission to the Master's programmes mentioned in the brochure must have (a) a Bachelor's degree in Engineering/Technology or equivalent or a Master's degree in Science or a Bachelor's degree in Architecture and (b) a valid GATE SCORE.

Candidates who have been successful in the GATE 1988 but whose results in the qualifying degree examination have yet to be declared are also eligible to apply provided they complete all requirements for the degree latest by August 1, 1988.

A candidate admitted once for M. Tech. programme with Scholarship will not be eligible for admission with Scholarship at the same or any other Institute on one valid GATE SCORE.

Seats are reserved for SC/ST candidates as per rules.

INFORMATION BROCHURE, APPLICATION FORM AND BASIC DATA-CUM-CHOICE SHEET can be obtained by sending

- (i) the application-cum-registration fee of Rs. 50/- by a crossed bank Draft in favour of the IIT to which the request is made, drawn on the State Bank of India of the same place ;
- (ii) a letter of request mentioning the details of the Bank Draft, and
- (iii) two slips of size 5 cm x 10 cm indicating the applicant's postal address in capital letters to any of the following :

The Chairman, GATE
Indian Institute of Technology
Bombay 400 076, or Kharagpur 721 302 or Madras 600 032

Issue of Application Forms commences on—April 18, 1988

LAST DATE for :

Issue of Application Forms — by Post — May 2, 1988
at the Counter — May 12, 1988
Receipt of completed applications — May 13, 1988

Sponsored or part-time candidates or self-financing foreign students should not apply in response to this advertisement. They should contact directly Dr. Registrar (Academic/PG students) of the concerned Institute for application form and other details.

*** For admission to IIT Kanpur and IIT Delhi please look for separate advertisement.**

Rohilkhand University, Bareilly (U.P.)

DEPARTMENT OF BUSINESS ADMINISTRATION

ADMISSION NOTICE

MASTER OF BUSINESS ADMINISTRATION (M.B.A.)
TWO-YEAR (FOUR SEMESTER) FULL-TIME PROGRAMME
(Commencing from July 1988)

Applications are invited, on prescribed form, for admission to SECOND BATCH of Master of Business Administration Programme for the academic year 1988-89 commencing from July, 1988.

INTAKE

The maximum number of students to be admitted is 30.

ELIGIBILITY

A bachelor degree or equivalent, in any field of knowledge from a recognised university or institute, shall constitute the minimum educational qualification for admission to the M.B.A. Course.

SELECTION CRITERIA

The students for admission will be selected purely on merit through an admission test, partly written (objective type—Aptitude Test) and partly oral (Group Discussion and Personality Interview). The written test will include English Comprehension, Numerical Ability, General Intelligence and General Awareness. Those candidates who qualify in the written test will be exposed to second phase of test, i.e., group discussion and personality interview.

CENTRES FOR TEST

The written test will be conducted simultaneously at two centres, viz., Bareilly, and Kanpur.

DATE OF WRITTEN TEST

The written test will be held on Sunday, 15th May, 1988.

SPECIAL FEATURES OF THE PROGRAMME

The Programme is highly innovative and placement oriented, dovetailed with most modern inputs and enables specialisation in the areas like Financial Management, Marketing Management. Personnel Management, Production/Operations Management, Public Systems Management including Rural Development.

Top quality Faculty (full time and part time) drawn from top level institutions/organisations in India are in position.

APPLICATIONS

The application form and information about the programme can be obtained on payment of Rs. 30/- from the cash counter of the University on any working day or by registered post on payment of Rs. 30/- through crossed bank draft payable at Bareilly, drawn in favour of the Finance Officer, Rohilkhand University, Bareilly alongwith a self addressed envelope of size 11" x 8" affixed with postal stamps of Rs. 7.50. The application forms by registered post would be sent up to 9th April, 1988. The requests, for application form by post, should be made to the Professor & Head, Department of Business Administration, Rohilkhand University, Bareilly-243001.

The envelope containing request for application form or the completed application form should be marked "Admission to MBA 1988".

Application form complete in all respects, accompanied by required certified copies of credentials and admission test fee Rs 100/- through a crossed Bank Draft payable at Bareilly, and drawn in favour of The Finance Officer, Rohilkhand University, Bareilly, should reach the Professor and Head, Department of Business Administration, Rohilkhand University, Bareilly-243001, not later than **20th April**, 1988.

B.S. GUPTA
REGISTRAR

UNIVERSITY OF CALCUTTA
SENATE HOUSE, CALCUTTA-700 073

Advt. No Est/1/88.
Dated : 8.3.1988

GROUP-A

Applications are invited for the following Whole time posts of Professors of this University in the present scale of pay i.e. Rs. 1500-2500/-, plus allowances as may be admissible from time to time under the rules of the University. Higher initial pay within the grade may be given to an incumbent in consideration of excellence of academic record and experience. The University offers Tripple retirement benefits, i.e. Contributory P.F., Gratuity and Pension as per the University Rules. Appointment will be made on merit without discriminations on grounds of race, religion, language or sex : however, working knowledge of written and spoken Bengali is desirable.

Essential Qualifications and Experience

(a) Uniformly good academic acareer with the Master's and Bachelor's degree with Honours of this University or equivalent.

(b) Evidence of continuing research interest as manifest in published work in reputed research journals or Doctoral degree of a recognised University.

(c) In the case of posts under the Faculties of Medicine and Technology, candidates must possess the essential qualification and/or experience required for the posts as laid down by the respective professional bodies viz. the Medical Council of India and the All India Council for Technical Education, as the case may be, where applicable.

(d) Teaching experience at the Post-Graduate level on relevant Industrial/Professional Experience—for Professors—15 years—(Evidence of successfully guiding Research students for P.G. Degree essential)—experience in guiding research at Doctoral level or an outstanding scholar with established reputation who has made significant contribution to knowledge.

Relaxations

The Syndicate may relax, if so recommended, by the Selection Committee on specific grounds, the stipulations regarding qualifications and the number of years relevant experience in case of candidates possessing exceptionally good academic records and outstanding capabilities. The Selection Committee may also consider suitable qualified persons who may not formally apply.

Posts

(A) Arts, Commerce & Business Management

1. Kumar Guruprasad Singh Professor of Indian Linguistics and Phonetics in the Department of Linguistics.
2. Mahamohopadhyay Gopinath Kaviraj Professor of Sanskrit in the Department of Sanskrit (Specialisation in Vedic literature).
3. Asutosh Professor of Sanskrit in the Dept. of Sanskrit.
4. Sarat Chandra Chattopadhyay Professor of Bengali in the Dept. of Bengali.
5. Rabindranath Tagore Professor of Bengali in the Dept. of Bengali.
6. Pandit Nilkanta Das Professor of Oriya in the Dept. of M.I.L.
7. Asutosh Professor of Medieval and Modern History in the Dept. of History.
8. Munshi Premchand Professor of Hindi in the Dept. of Hindi (subject to formal creation of the post by the Syndicate).
9. Acharyya B.N. Seal Professor of Mental and Moral Philosophy in the Dept. of Philosophy.
10. Professor of Education in the Dept. of Education.
11. Asutosh Professor of Islamic Culture in the Department of Arabic and Persian.
12. Rani Bagiswari Professor of Indian Fine Arts, in the Department of AIHC.
13. Ekbal Professor of Urdu in the Dept. of Urdu.
14. IFCI Professor of Commerce.

(B) Science and Technology

1. Professor of Applied Physics in the Dept. of Applied Physics.
2. Professor of Pure Mathematics in the Department of Pure Mathematics.
3. Professor of Marine Science in the Dept. of Marine Science with specialisation in Physical/Abemical Oceanography.
4. Sir R.B. Ghose Professor of Applied Chemistry in the Dept. of Chemical Technology.
5. Sir R.B. Ghose Professor of Applied Physics in the Dept. of Applied Physics.
6. Sir R.B. Ghose Professor of Applied Mathematics in the Dept. of Applied Mathematics.
7. Professor of Applied Mathematics (in the Centre of Advanced Studies).
8. S.N. Bose Professor of Theoretical Physics in the Dept. of Applied Mathematics.
9. Kumar Guruprasad Singh Professor of Chemistry in the Dept. of Pure Chemistry.
10. Professor of Petroleum Engineering in the Dept. of Chemical Technology.
11. Professor of Chemical Engineering in the Dept. of Chemical Engineering.
12. Two Professors in the Dept. of Electronic Science—with specialisation in
    (1) Communication circuits and General Electronics, and
    (2) Material Science and Optoelectronics.
13. Three Posts of Professors in the New Cells of Biophysics, Molecular Biology and Microbiology and Genetics.
14. Professor of Computer Science.

(C) Medicine

1. Centenary Professor of Anatomy in the Dept. of Anatomy.
2. Professor of Pathology in the Dept. of Pathology.

GROUP—B

Applications are invited for the posts of Professor—1 post, Readers—2 posts, Lecturers—4 posts in the U.G.C. Scales of Pay i.e. Professor—Rs. 1500-2500, Reader—1200-1900 and Lecturer—700-1600) plus allowances as may be admissible from time to time under the rules of the University, under the DEPARTMENT OF LAW.

Essential Qualifications and Experience

Professor : An eminent scholar with published work of high quality and actively engaged in research. 10 years experience of teaching and/or research. Experience of guiding research at Doctoral Level or an outstanding scholar with established reputation who has made significant contribution to knowledge.

Reader : Good academic record with a Doctoral Degree or equivalent published work. Evidence of being actively engaged in (1) Research or (2) Innovation in teaching methods or (3) Production of teaching materials.

About 5 Years experience of teaching and/or research provided that 3—of these years were as lecturer or in an equivalent position.

The candition may be relaxed in the case of candidates with outstanding research work.

Lecturer : (a) A Doctorate's degree or research work of an equally high standard; and

(b) Good academic record with at least second class (in the seven point scale) Master's degree in a relevant subject from an Indian University or an equivalent from a foreign University.

Having regard to the need of developing inter-disciplinary programme, the degrees in (a) and (b) above may be in relevant subjects.

Provided that if the selection committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may realex any of qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's Degree or equivalent research work is not available or is not considered suitable, a person possessing a good academic record (weightage being given to M.Phil or equivalent degree or—research work of quality) may be appointed provided he has done research work for at least two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's Degree or produce evidence of research of high standard within eight years of his appointment, failing which he will not be able to earn future increment until he fulfils requirements.

The Syndicate may relax, if so recommended by the Selection Committee on specific grounds, the stipulations regarding qualifications and the number of years of relevant experience in the cases of candidates possessing exceptionally good academic records and outstanding capabilities. The Selection Committee may also consider suitable qualified persons who may not formally apply.

FOR GROUPS A AND B

The selected candidates will be placed on probation for one year which may be waived in exceptional cases. The appointment shall be subject to the rules laid down for the teachers from time to time.

Applications (Seven copies) in prescribed form (obtainable from the University Sales Counter on payment of Rs. 10/ or by post on sending a self-addressed Re. 1/- stamped envelope of 28 cm x 12.5 cm. size with a crossed I.P.O. of Rs. 10/- payable in the name of Calcutta University) should reach the undersigned not later than 8th April, 1988.

For persons applying from abroad, submissions of applications in the prescribed form is not necessary. Such candidates may submit seven typed copies of detailed Biodata with an application fee of Rs. 10/- within 8.4.88.

Candidates who had applied in response to previous advertisements of 1984 and 1985 need not apply again in the prescribed form but they are advised to send on plain papers additional information, if any, together with a fresh bio-data in support of their respective candidature indicating therein the exact post(s) for which they had applied and now desire to be considered.

S.N. Ghosh
REGISTRAR

SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCES AND TECHNOLOGY, TRIVANDRUM-11.

Advt. No. 6/Sctimst/88

Dated : 5-3-1988.

(An Institution of National Importance under the Government of India).

Invite applications from Indian Nationals for the following posts :—

1. Professor in Anaesthesia
2. Professor in Cardiology
3. Assistant Professor in Neurology
4. Assistant Professor in Neurosurgery
5. Lecturer in Cardio Vascular Thoracic Surgery (Reserved for SC/ST candidates)
6. Scientific Officer (Polymer).

Scale of Pay : (With approximate total emoluments in the brackets).

Post 1 & 2 : Rs. 2500-100-3200/- (Rs. 5715.30+HRA).

Post 3 & 4 : Rs. 1800-75-2100-100-2400/- (Rs. 4209/-+HRA).

Post 5 : Rs. 1500-60-2040/- (Rs. 3598/- +HRA).

Post 6 : Rs. 700-40-1100-50-1300/- (Rs. 2159.50+HRA).

(The Scales of Pay of the above posts are under upward revision).

Maximum Age limit as on 31-3-1988.

Post 1 & 2 : 50 Yrs.

Post 3 & 4 : 40 Yrs.

Post 5 & 6 : 35 Yrs.

Qualification and Experience

Post 1 : Professor in Anaesthesia

(a) A Medical qualification included in the first or Second Schedule or Part II of the Third Schedule to the Indian Medical Council Act, 1956 (Persons possessing qualifications included in Part II of the Third Schedule should also fulfil the conditions specified in section 13(3) of the Act).

(b) M.D./FFARCS/FRCS(C)/American speciality Board Certification/Diploma of the National Board in the speciality.

(c) **Experience :** Teaching and/or research experience of not less than ten years after the prescribed postgraduate qualification.

Desirable : Experience in administration of Departmental work and research programmes.

Post 2 : Professor in Cardiology

(a) Same as for Post 1

(b) DM/FRCP(C)/American speciality Board Certification/Diploma of the National Board in the speciality.

(c) Same as for post 1

Desirable : Experience in administration of Departmental work and research programmes.

Post 3 : Assistant Professor in Neurology.

(a) Same as for post 1

(b) DM/FRCP(C)/American speciality Board Certification/Diploma of the National Board in the speciality.

(c) Teaching and/or research experience of not less than 2 years in the subject after the prescribed post graduate qualification.

Post 4 : Assistant Professor in Neurosurgery

(a) Same as for post 1

(b) M. Ch/FRCS(C)/American speciality Board Certification/Diploma of the National Board in the speciality.

(c) Same as for post 3.

The applicants who are not suitable for the post of Asst. Professor will be considered for the post of Lecturer, if willing.

Post 5 : Lecturer in Cardio Vascular Thoracic Surgery

(a) Same as for post 1

(b) M Ch/FRCS(C)/American speciality Board Certification/Diploma of the National Board in the speciality.

Post 6 : Scientific Officer (Polymer)

(a) M.Sc/M. Tech. in Organic Chemistry/Physical Chemistry/Polymer Chemistry/Polymer Technology/Biochemistry.

(b) **Experience :** Candidates with M.Sc. should possess a minimum of 2 years and candidates with M. Tech. one year.

(c) **Desirable :** Experience in modification of prosthetic surfaces for biological application.

Age, qualification, experience etc. relaxable in exceptional cases.

Application in plain paper with biodata of the candidate and attested copies of certificates of educational and professional qualifications, date of birth, experience etc. should reach the undersigned on or before 25.4.1988.

DIRECTOR

INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY

POWAI, BOMBAY-400 076

Advertisement No. C-199/87-88

Applications are invited from citizens of India for faculty positions in the following Interdisciplinary Programmes at this Institute, in the prescribed form obtainable free of charge from the Registrar, Indian Institute of Technology, Powai, Bombay-76, on request accompanied by a self-addressed envelope (25 cm x 10 cm). Persons employed in Government/Semi-Government Organisations or Educational Institutions should apply through proper channel. Indians abroad may apply on plain paper in duplicate. Candidates should give an account of their academic and professional record, a list of research publications and names of three referees. The posts carry allowances such as D.A., C.C.A., H.R.A., as per rules of the Institute which at present correspond to those admissible to Central Government employees stationed at Bombay. Depending on qualifications and experience, a higher salary may be offered. If a candidate for the post of Professor does not possess the requisite experience of 10 years, but otherwise has proven ability, he may be considered for the position of Associate Professor. Similarly, a candidate may also be considered for appointment as Visiting Faculty at appropriate level. Completed applications should reach the Registrar, IIT, Powai, Bombay-400 076 on or before **15th April, 1988**.

Some posts of Lecturers are reserved for candidates belonging to the SC/ST communities.

IIT Bombay has twelve academic Departments—seven in Engineering disciplines, four in Sciences and one in Humanities and Social Sciences. In addition, there are few Centres of which —Industrial Design Centre and Centre for Environmental Science & Engineering—offer degree programmes. All the Departments/Centres have well equipped research laboratories.

The Institute has an extensive Library, a Central Workshop and a number of mini and micro computing facilities. A fourth generation main frame computer system (Cyber 180/840) has been recently installed at the Computer Centre which looks after the computing requirements of the Institute and other organizations. Excellent facilities exist for experimental research through Centres such as Advanced Centre for Research in Electronics, Centres of Studies in Resources Engineering, Regional Sophisticated Instrumentation Centre, Computer Aided Design Centre etc.

Scales of Pay (likely to be revised shortly)

(i) **Professor** : Rs. 1500-60-1800-100-2000-125/2-2500.

(ii) **Associate Professor** : Rs. 1500-60-1800-100-2000.

(iii) **Assistant Professor** : Rs. 1200-50-1300-60-1900.

(iv) **Lecturer** : Rs. 700-40-1100-50-1600.

Qualifications & Experience

1. Professor

Excellent academic record with Doctorate degree in the appropriate field from a recognised University/Institute, minimum 10 years experience in teaching/research/industry and specialised knowledge in one or more relevant fields. Professional/Scientific work of outstanding merit and experience of carrying out independent research and of guiding research are desirable.

Candidates not possessing a Ph. D. may also be considered if they have to their credit equivalent published research work or design/development work of high standard either in an institution or in an industry.

2. Assistant Professor

Consistently good academic record with a Doctorate in the relevant field. About 5 years experience in teaching and/or research and development.

Candidates not possessing a Ph. D. may also be considered if they have to their credit equivalent published research work or design/development work of high standard either in an institution or in an industry.

Age : Preferably below 35 years.

3. Lecturer

A Doctorate in Science or a Master's degree in an appropriate field in Engineering/Technology/Management with a very good academic record and a first class at Bachelor's degree and/or Master's degree level.

Minimum one year or relevant experience in teaching/research/industry.

Age : Preferably below 30 years.

Posts & Areas of Specialisation

1. Materials Science

Professor/Associate Professor; Assistant Professor; Lecturer.

(i) Electronic and Magnetic Materials.
(ii) Surface Science
(iii) Materials Synthesis and Processing
(iv) High temperature superconductors.

2. Energy Systems Engineering

Assistant Professor/Lecturer

(i) Bio-mass, Bio-gas and related alternate energy technologies.
(ii) Energy Policy/Planning / Modelling/Management/Conservation.

3. Industrial Engineering & Operations Research

Professor/Associate Professor
Assistant Professor; Lecturer

(i) Industrial Engineering—Methods Engineering and Work Measurement; Facility Planning, Maintenance and Quality Control; Human Factors Engineering.
(ii) Operations Research — Mathematical Programming and Stochastic Processes: Theory and Applications.
(iii) Production and Operations Management—Theory and Applications of Quantitative Methods/Computerised Systems to Production, Project, Materials, Distribution Systems and other Operations Systems; Manpower Planning and Financial Planning.

4. Industrial Management

Professor/Associate Professor
Assistant Professor/Lecturer

(i) Management Accounting, Finance and Business Economics
(ii) Information Technology for Management
(iii) Marketing Management, with emphasis on Industrial Marketing
(iv) General Management, with emphasis on Human Resource Development
(v) Production Management
(vi) Technology Management and Policy Evaluation
(vii) Entrepreneurial Development

5. Systems & Control Engineering

Assistant Professor

(i) Control Engineering / Systems Engineering

6. Corrosion Science & Engineering

Assistant Professor/Lecturer

(i) Corrosion protection system including Marine Corrosion

(ii) Metallic Corrosion, high temperature corrosion and their effect on mechanical properties.

7. Reliability Engineering

Assistant Professor/Lecturer

(i) Design (Mechanical, Electrical, Civil, Chemical Nuclear, Electronics etc.)

(ii) Manufacturing (Quality Assurance, Maintenance)

(iii) Testing

8. Bio-Sciences & Engineering Group

Professor/Assistant Professor

Qualifications

In lieu of the requirements prescribed in general at the beginning of this advertisement—A good Master's degree in Chemistry, Bio-chemistry or Physics with Ph.D. degree and published work in the following area of specializations :

(i) Molecular Biology

(ii) Molecular Biophysics

(iii) Molecular Immunology

Candidates should provide a brief write-up on their future research projects along with the application.

REGISTRAR

SRI VENKATESWARA UNIVERSITY

NEELAM SANJIVA REDDY BHAVAN, TIRUPATI

No. E. II-2/88 (Advt.)(1)

Dated : 10-3-1988

ADVERTISEMENT

Applications are invited in the prescribed form from the teachers holding the position of Professor/Reader or their equivalent cadres in the Universities who are willing to be considered for the post of Director for the proposed Academic Staff College of S.V. University, Tirupati. The post is sanctioned by the U.G.C. for the period ending with the Seventh Plan viz., 31-3-1990. The qualifications and service conditions including age of retirement will be the same as prescribed for a Professor.

The scale of pay prescribed for the post is that of a Professor viz., Rs. 1500-60-1800-100-2000-125/2-2500.

The filled-in application forms should reach the University on or before 5.00 P.M. on **4-4-1988.**

The prescribed application form and other particulars can be had from the Registrar, Sri Venkateswara University, Tirupati-517 502, Andhra Pradesh, from 14-3-1988 onwards on payment of Rs. 10/- (Rupees ten only) by a **Crossed Demand Draft** of the said value drawn in favour of the Registrar, Sri Venkateswara University, Tirupati-517 502, Andhra Pradesh. The University will not be held responsible for any postal delays. **Indian Postal Orders, Bank Challans and Money Orders** will not be accepted.

The requisition for the application form must be accompanied by a self-addressed envelope of the size of 12" x 8" duly affixing stamps worth Rs. 5/-. Requisitions received without self-addressed and stamped envelope, and/or without requisite fee will be rejected.

Application fee once paid will neither be refunded nor adjusted towards any fee payable.

The filled-in applications received after the due date (i.e., at 5.00 P.M. on 4-4-1988) will be rejected.

Candidates called for interview have to attend the interview at their own expense.

C. Subba Raju
REGISTRAR

ANNA UNIVERSITY : MADRAS 600 025

S.C./S.T. TEACHER TRAINING PROGRAMME

Advertisement No. 5498/L3/88

Dated : 5.3.1988

Applications are invited in the pre cribed form from candidates belongi to S.C./S.T. for recruitment as Teach **Trainees.**

Qualification : B.E. or B. Tech

Stipend : Rs. 1,300/- per mont

Age Limit : 27 years

Training Period : 3 years

During the period of training t trainees will be provided with an oppo tunity to qualify for Master's Degr on a part-time basis within a period three years.

On successful completion of t training, the trainee will be consider for direct appointment as Lecturer the scale of pay of Rs. 700-40-1100-5 1600, with effect from the date of joini as trainee and pay fixation will consist increments for the period of training.

Application form and other deta can be had on requisition accompani by a crossed Indian Postal Order f Rs. 10/- (Rupees Ten only) dated n earlier than 21.3.88 in favour of th Registrar, Anna University, Madras-2 together with a stamped self address envelope (Rs. 2/-) of size 22 cm x 10 c Requisition for application form a other details will be entertained up **29.4.88**

Last date for receipt of complet application form is **6.5.88.**

REGISTR

Printed & Published by SUTINDER SINGH, on behalf of the Association of Indian Universities, AIU House, 16 Kotla Marg
New Delhi-110002. Grams : ASINDU. Phones : 3315105, 3313390, 3312305, 3310059 and 3312429 Telex 31 5578 AIU IN
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University News

ONDAY, MARCH 28, 1988 Rs. 1.50

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UNIT
13 [illegible] 1988

Higher Education in India
—The Shifting Perspectives

●

Accreditation and Assessment Council

●

Science Education and Communication

●

Varsity Status for NDRI

●

Open University Expansion Plans

●

Taxing Graduates

NETAJI INSTITUTE FOR ASIAN STUDIES

Sarat Bose Bhavan, 1, Woodburn Park, Calcutta-700 020

Phone : 44-3145

Advertisement No. EAS/04/88

Applications, typed in triplicate, giving full particulars as indicated below, are invited for the following posts so as to reach the Director of the Institute by **15.4.88.**

I. **Professor**—one each in the Department of (a) **Economic Co-operation** and (b) **Ethnolinguistics.** the scale of pay : Rs. 1500-60-1800-100-2000-125/2-2500 with allowances as per State Government Rules and pensionary benefits where admissible.

Minimum Qualifications : First Class Masters' Degree with High Second Class Honours or High Second Class Masters' Degree with First Class Honours in the relevant subject and Ph. D. o equivalent research work. **Desirable** : Experience of research supervision in the relevant field knowledge of the history and language of at least one South/Southeast Asian Country other tha India.

II. **Asstt. Professor in International Relations** in the Pay Scale : Rs. 1200-50-1300-60-1900/- plu allowances as per State Government Rules. Appointment initially for 3 years, renewable at th discretion of the authorities. **Qualifications** : Same as for (I)

III. **One Senior Scholarship** of Rs. 1,000/- p.m. (consolidated) in the Department of **Ethnolinguistic** and

One Junior Scholarship of Rs. 700/- p.m. (consolidated) in the Department of **Ecology.**

Subject to satisfactory performance both scholarships are tenable for a maximum period of thre years.

Minimum Qualifications : Masters' Degree in the relevant subject with at least 50% marks in th aggregate on an average for all public examinations.

Desirable for Senior Scholarship : Ph. D. level research experience or publication of sufficie merit.

Age Limit : For (I) & (II) below fifty, for (III) below thirty.

Particulars Required :

(1) Name,
(2) Mailing Address
(3) Date of Birth (to be certified)
(4) Academic Record (to be certified) giving year of passing, division and percentage of marks obtaine award/distinctions, if any, for all public examinations,
(5) Research experience,
(6) Research Guiding Experience (only for Item No. I & II),
(7) Publications,
(8) Present occupation and salary drawn,
(9) A brief scheme of research proposed to be undertaken if appointed.

N.B. : 1. The choice of the Selection Committee may not be confined to those who formally appl Prescribed qualifications and age limit may be waived in case of candidates found otherw outstanding.

2. In-Service candidates should apply through proper channel.

UNIVERSITY
NEWS

VOL. XXVI MARCH 28,
No. 13 1988
Price Rs. 1.50

A Weekly Chronicle of Higher Education published by the Association of Indian Universities

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Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association.

Editor :
SUTINDER SINGH

UNIT
13 APR 1988
C. F. T. R. I., MYSORE

Higher Education in India

The Shifting Perspectives—II

K. K Balachander*

III

Development Since Independence

Planning Higher Education for Economic Growth

The dominant feature of post-Independence development of higher education has been the enormous growth in student numbers and institutions. Enrolment made rapid strides, particularly in the sixties. This was also the time when economic thought was bringing into focus the **investment** aspect of education. Many less-developed countries which got Independence from colonial rule believed—or were led to believe—that it is the qualitative improvement in human resources that determined the character and pace of economic development, and the principal instrument for it is the formal education system. Much of the economic progress of advanced countries that were among the backward and poorest only a few decades ago, it was pointed out, was the outcome of the development of their human resources through education, particularly higher education. Also, the speedy and spectacular recovery of Japan and Western Europe from the debris of World War II—against the expectation of some economists who overestimated the need for physical capital for recovery—and reaching the most favourable growth rates in the post-war period, was ascribed to their technical and skilled manpower which they had built up over the years. The largest fraction of the rate of growth of the American economy and the USSR economy was attributed to growth of knowledge and skill which facilitated increased efficiency of physical capital. In contrast to the above countries, it was argued, many less-developed countries could not generate higher output, in spite of massive financial investment made by them in physical assets, because they did not realise that a sufficient stock of educated workers and personnel was a necessary condition for economic growth; hence a convergence between education, particularly higher education, and economic growth must be even more important in poorer countries to raise the productivity of labour than in the advanced ones.

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And so the economists discovered (or rediscovered, because the classical economists never overlooked the point) the importance of complementary human factors, of investment in human resources. There has been a large body of literature on the economic aspects of education since the beginning of sixties, and the new concepts and methods developed became subject-matters of wide discussion. In India too, similar studies were conducted. 'Economics of Education' thus began to affirm itself as a new domain of economic analysis. Economists ceased to wield axes, and instead became standard-bearers of educational advance. And the education profession, as Dore put it, "just stood by and let them do it." In fact they were happy to have economists on the side of education —there were good precedents for this, notably Adam Smith and J.S. Mill—and popularise the economic value of education (although some among them felt that material affluence was not the stuff of which 'good life' was made; non-material values which, even though hard to measure, were no less important than the GNP). In short, educationists began to think in terms of economics, when economists began to think in terms of economics, when economists began to pay special attention to education. Education came to be discussed in the language and terminology of economists (which was again rather disquieting to some since the concept of **investment** is closely linked with the idea of expenditure in the expectation of **monetary gain**, or profit, and not to the **intrinsic value** of education). It was even talked of as an 'industry', and attempts were made to apply to it the tools of analysis of the industry. Many of those who once got upset by the idea that it should be treated like an industry, appeared to get more upset if people could not see that it was the most important industry !

The then policy-makers in India naturally welcomed the support provided by their new-found allies—economists and educationists. There came into being a wider agreement among them that educational decisions should take into account the economic value of education. The goal of nationwide benefits of an educated populace seemed to justify public expenditure on an increasing scale for the expansion of education, particularly higher education. The First Five Year Plan, launched in 1951, had stated : "No Plan would succeed unless it invested in the improvement of human material, and even from the point of increasing production, social services like education and technical training brought significant results". The subsequent Plans also had emphasised that education is the focal point of development. The following opening sentence of the Report of the Indian Education Commission (1964-66) summed up the assumptions of most writers on education and development in the early sixties thus : "The destiny of India is now being shaped in her classrooms. This, we believe, is no rhetoric......it is education that determines the level of prosperity, welfare and security of the people". Alfred Marshall's observation that 'Education is a national investment' appeared to have lost none of its value. This meant acceptance of educational planning as an essential part of economic planning. Thus education, particularly higher education, got caught up in a society on the move as never before.

Another reason which motivated the Government of India to expand higher education at a rapid pace was its desire to transform the 'elite' character of the system inherited from the British Government and make it more representative of Indian society by drawing within its fold the broad sections of the lower income groups and socially under-privileged sections. This was a pre-Independence promise. The enrolment in higher education was thought to be inadequate considering India's youth population. Besides, as the notion that education, particularly higher education, is the key to productive life (and national prosperity) came to be accepted, discrimination among students had to break down, for who can be denied the chance to become useful and productive ?

Once the aspirations of the people were kindled, the movement of the higher educational sector was only in one direction—upwards. It became a need among larger and larger sections of the population. More and more institutions had to be opened, and the existing ones expanded. The Governments, at Central and State levels, moved to funnel larger funds into the higher education sector.

The Currents of Change

Higher education at one time was a means of acquiring wisdom and satisfying curiosity; it was not an instrument for achieving economic goals—in fact, there was no urgent need then to put scholarship to any practical use. The attachment to the past was predominant. Before the age when specialisation was forced on the society, a classical education was considered a virtue. Higher educational institutions, established with the above end in view, were maintained through the dedication of some individuals. However, the new demand of 'economic life' was such that even the modern higher education adopted during the British period needed complete remodelling—both in its 'extent' and 'content'. Colleges and universities were no longer considered as citadels of **status quo**; these institutions, it was felt, should be liberally irrigated by the currents of change. This implied important structural reforms and the creation of new types of institutions for training in new subjects that were of practical significance in terms of future careers. The Government had to take steps towards diversification/specialisation of higher education in order to widen and upgrade the country's talent pools. The pre-Independence system had adhered mostly to a uniform type of general education meant for a small and privileged fraction of the relevant age group. Professional/Technical Education had earlier been played down though in Britain, Central Europe, etc., the significance of this type of higher education had long been recognized and acted upon. Provision had therefore to be made for more professional and technical education. Out of the total number of students getting university education, only about 20 per cent were receiving professional education in 1947-48.

In the above process, a line has been drawn between higher education pursued for **its own sake** and learning applied **to economic ends** The conception of knowledge as a thing desirable on its own account still linger among a few people, but they are in a minority. It is doubtful if higher education would have proved as attractive as it turned out to be later if pure pursuit of knowledge had been the sole criterion and not the advantages that it provided to building subsequent careers. When the desire for material prosperity, which had remained subterranean so far, was aroused, and with the realisation the it **could** be achieved through higher education, demand for higher education increased at a rapid pace. An increase in the college/university age group population and the status attached to a university degree also have led to further pressure.

Quantity Without Direction

India now operates a higher education system much larger than many developed and developing countries. She had 0.9 per cent of the relevant age group (17-23) participating in higher education in 1950-51, 1.8 per cent in 1960-61, 4 per cent in 1970-71 and about 4.5 per cent in 1980-81. Many other countries, both developed and developing, have more than 10 per cent of pupils in that age group enrolled. Admittedly, the proportion of the relevant age group in higher education in India is one of the lowest in the world. However, compared to many developed and developing countries, India has a **larger number** of students enrolled in higher educational institutions, and this exceeds or is almost equal to the individual population of some countries. In 1947, India had only 19 universities and 650 colleges having a student intake of about 2.5 lakhs; now it has 150 universities and about 5500 colleges with an enrolment of nearly 4 million. About 2 5 lakhs of teachers are employed at present in universities and colleges. In 1950-51, the total expenditure on higher education was a mere Rs. 20 crores; it was estimated to be over Rs. 600 crores in 1983-84—thirty-fold increase—a large part of which being covered by Government funds.

The twin objective of making available sufficient middle and upper level trained manpower to the economy in its programme of economic development and at the same time meeting the rising expectations of the vast sections of the young people who had long been denied higher educational opportunities, has introduced some important new dimensions to the policy of development of higher education in the country. In other words, the Government is keen to pursue the three goals of **quantity**, **quality** and **equality** simultaneously, and that too in a situation of financial scarcity. Fulfilling all these three perhaps not-easily-compatible-objectives is a difficult task. The more the quantity the less it favours quality and **vice versa** : the less the resources, more difficult it becomes to equalise higher educational opportunities. The Indian scene exhibits some special characteristics which may not be exclusive, but nowhere else are they so sharp and glaring in proportions as here. There still exists some confusion on the right to receive higher education. A question that is often posed is; should it be equality of opportunity for all, irrespective of merit, in the sense that higher education is a **right**, or should it be equality of opportunity for **some** in the sense that it shall be available to all on the basis of **merit**, i.e. equality of accessibility, with adequate safeguards for non-discrimination on grounds of income/social origin ?

The development of higher education since 1950

TO OUR READERS

Knowledgeable and perceptive as they are, our contributors must not necessarily be allowed to have the last word. It is for you, the readers, to join issues with them. Our columns are as much open to you as to our contributors. Your communications should, however, be brief and to the point.

Accreditation and Assessment of Institutions of Higher Learning

Programme of Action (POA) of the National Policy of Education (NPE) 1986 inter alia recommended that :

"Excellence of institutions of higher education is a function of many aspects : Self-evaluation and self-improvement are important among them. If a mechanism is set up which will encourage self-assessment in institutions and also assessment and accreditation by a Council of which these institutions are corporate members, the quality of process, participation, achievements, etc. will be constantly monitored and improved.

It is proposed to develop a mechanism for accreditation and assessment for maintaining and raising the quality of institutions of higher education. As a part of its responsibility for the maintenance and promotion of standards of education, the UGC will, to begin with, take the initiative to establish Accreditation and Assessment Council as autonomous body."

In pursuance of this directive, the University Grants Commission (UGC) constituted a Committee under the Chairmanship of Dr. Vasant Gowariker, Secretary, Ministry of Science and Technology "to make recommendations regarding setting up of Accreditation and Assessment Council in order to develop a mechanism for maintenance and raising of quality of institutions of higher education, while keeping in view the objectives, uses and various methods/procedures that are currently being followed by different countries or that can be adopted."

The Report of the Committee is being published for wider readership.

I. Introduction

In brief, what is wrong with Indian universities is that they are not generative. They do not give rise to a vital and self-supporting intellectual life. Though it is true that they do not have realistic funding, their achievement is still not proportionate to the time, effort and intellectual resources expended on them. Perhaps the major cause of their failure is the manner of their governance, which does violence to the operations of mind and the growth of knowledge. Academic institutions must be built around the principle of intellectual autonomy. Most of ours are not.

Historical roots of the mediocrity of Indian higher education can be traced to the exigencies of British rule, in the need to contain the dangerous potential of self-rule in the realm of ideas. The present structures are descended practically unaltered from that time. The governance of universities is part of a larger pattern, the command-and-control style of bureaucracy, which was established in the interests of British supremacy and which still continues to dominate our public life.

II. Management of Higher Education

Command-and-control management entails a hierarchical notion of "accountability" und top-down initiative. Goals and values are formulated from the outside, and the various ways in which their implementation can go wrong are taken into account and sanctions are provided against these. The governing attitude is suspicion. Dignity and authority are vested largely in the supervisory levels, most of all in the remote government bureaucracy, and next to none with working academics. Intellectual and pedagogical initiative are stifled, and experimentation, innovation and the finding of appropriate responses to local circumstances become impossible. The goals of universities get pitched at a very modest level, to achievements peripheral to the real purpose of a university such as the regular holding of examinations and the announcement of results. The management of universities gets reduced to a law-and-order problem, with a limited and crude repertoire of political—bureaucratic actions to bring them to a semblance of control.

The situation of colleges is particularly bad, because of their subordination to affiliating universities. This suffocates the initiative of college faculty and denies them the necessary control over the circumstances of their work. On the other hand, factors like the recent raising of the college entrance age with the addition of two years of secondary education and the raising of lecturer qualification to the doctoral level have made the issue of academic autonomy at the college level both more urgent and more promising.

There is an alternative style of management to the command-and-control, hierarchical bureaucratic method. It is a style which has been demonstrating its superiority world-wide, not just in the academic realm but in business and government as well. It means putting people first. In the words of one of the leaders of the Japanese ascendancy, "To motivate people, you must bring them into the family and treat them like repected members of it." A system which does this is decentralized, democratic and facilitative.

In the academic sphere the first postulate of the new system is the authority and dignity of the working academic. Once this is conceded, the organizational patterns that are coherent with it follow naturally. These include collegiality in the life of the department and of the institution, and the derivation of administrative authority from departmental and faculty councils.

Though it is widely conceded that nothing worthwhile can be accomplished without academic autonomy, the tendency is to let the fear of potential abuse lead back to the bureaucratic-hierarchical system.

III. Accreditation

As a way to assure the effectiveness of academic institutions while maximally supporting academic self-regulation, the Programme of Action of the National Policy on Education 1986 has called for the setting up of an autonomous Council on Accreditation and Assessment. The accreditation policy forms part of a reform which must be viewed as a whole and whose other important aspects include the provision for autonomy of colleges and the projected National Testing Service.

While the central motive to the accreditation system has come from the requirements of college autonomy, it also answers the need for a systematic and regular means for assuring that colleges and universities and functioning effectively.

The hierarchical-bureaucratic approach to possible academic abuses is like administering a dope-test while the race is still on. The system of institutional accreditation, on the other hand, is based on first giving an institution the maximum freedom in defining its goals and the means to achieve them, and then examining it closely, as a whole. The crucial difference from the bureaucratic system with its cumbersomeness and enforced uniformity is made possible by reliance on the faculty of judgment, in particular the judgment of responsible educators who know what academic excellence is through their own participation in it. They are able to evaluate the institution as a whole and to assess its parts in terms of their functional relation to this, and they are not constrained to see those parts only in terms of adherence to some preconceived bureaucratic prescription.

Operationalisation of an effective system of accreditation in the country will gradually lead to the establishment of norms and criteria for institutional performance assessment, and methodologies and tools for systematic institutional self-study and self-evaluation. Moreover, institutions themselves will collectively benefit through integration of this element of assessment into the institutional culture.

IV. Important Features of an Accreditation System

Institutional accreditation originated in the United States and has existed there in close to the present form for some decades and is also to be found in Canada and Japan among others. The division of authority and responsibility between central government and states in the field of higher education is similar in North America and India. Some of the main features of an operational institutional accreditation system which commend themselves are the following :

(1) Institutional accreditation, the recognition of the performance and integrity of an educational institution, is granted by an association of institutions of higher education. Accreditation means membership in the association, and the accrediting commission of the association is elected by the institutional members.

Accreditation, which is the assurance by a non-governmental body of the quality of an educational institution, must be distinguished from the granting by the (state or federal) government of a charter or licence to an institution, legally enabling it to award degrees. An institution must have a charter before it can be accredited.

(2) Institutional accreditation is a means for the self-regulation of the academic profession, with minimal political and bureaucratic interference.

(3) Institutional accreditation does not imply that accredited institutions have a similarity of goals or uniformity of process or that they are comparable. It permits diversity and innovation.

(4) The first part of the accreditation process is a self-study by the institution, involving in this activity all of its major constituents including faculty, students and administration. Included in this process is the sharp defining by the institution of its primary mission or goals. This must be soundly conceived; it must be realistic as well as appropriate to the collegiate level.

(5) The second part of the accreditation process is an onsite evaluation by a team of professional educators (faculty and administrators). Though they have the help of published association policies, their main reliance is upon their own experienced judgement. Institutional evaluation is ultimately subjective.

(6) Institutional accreditation indicates that, in the judgement of responsible members of the academic community, an institution's own goals are soundly conceived and appropriate, that its educational programmes have been intelligently planned and are competently conducted, and that the institution is accomplishing the majority of its goals substantially and has the resources to continue to do so for the forseeable future.

(7) Institutional accreditation is a matter of "yes" or "no" to the institution as a whole. It embraces all educational endeavours conducted by a single institution regardless of its complexity. Institutional accreditation must be distinguished from specialized or professional accreditation; where the latter applies, institutional accreditation is usually a prior necessity. Institutional accreditation must also be distinguished from the nationwide comparative assessments of departments in a particular discipline. This is usually carried out by a professional association in that discipline.

(8) In order to be accredited an institution must meet the Association's qualitative criteria for the assessment of institutional effectiveness in each of the principle areas of institutional activity and responsibility, as follows :

a. Institutional Mission and Objectives
b. Evaluation and Planning
c. Organization and Governance
d. Programmes and Instruction
e. Special Activities
f. Faculty
g. Student Services
h. Library and Learning Resources
i. Physical Facilities
j. Financial Resources
k. Ethical Practices
l. Publications and Advertising

(9) The accreditation agency is not simply a body for the assurance of educational quality. The process of accreditation encourages institutional improvement through continual self-study and evaluation. Accreditation agencies develop criteria and guidelines for assessing institutional effectiveness. And the expert criticism and suggestions of the evaluating team are invaluable.

(10) Developing or newly applying institutions can, prior to accreditation, be awarded candidate status on satisfying certain criteria. **These Requirements of Candidature** concern institutional characteristics largely capable of objective verification. Candidature is usually granted for a two-year term. If progress is being made, candidacy can be extended for up to six years.

(11) Accreditation must be periodically reaffirmed, within a period of five years after initial accreditation, and within ten years thereafter. Accrediting bodies reserve the right to review member institutions any time for cause. They also reserve the right to review any substantive change in the institution; such changes are reviewed within two years after the changes become effective. An accredited institution which shows serious weakness in one or more areas, but which also shows firm potential for remedying the deficiencies, may be put on probation. Accreditation continues, but generally for a sharply reduced term.

(12) The accrediting associations are institutional-membership organizations supported by annual dues, from the candidate and accredited institutions. They elect the accreditation commissions, the bodies which make the final decision on accreditation after receiving the institution's self-study report and the report of the evaluation team.

Expenses for accrediting activities are borne by the institution on a cost basis. This is kept low by the extensive use of volunteers on evaluation visits.

A typical Commission consists of sixteen members who are elected at the Annual Meeting for staggered three-year terms. Provision is made for different types of institutions and the general public to be represented on the Commission. Commissioners serve without compensation, and those who are institutional representatives are currently active on the faculties or staffs of institutions accredited through the Commission. The Commission normally meets four times a year, but various committees may meet more frequently. The day-to-day activities of the Commission are conducted by a Director of Evaluation, professional staff, and support staff.

(13) Though accreditation agencies are non-governmental their accreditation has come to be recognized as a necessary qualification for eligibility to receive federal funds. The federal government in turn recognizes, for a four-year duration, those accrediting agencies which it finds to be a reliable indicator of educational quality.

(14) Despite the diversity of accredited institutions, there are some substantive curricular requirements that they must all meet, most notably a coherent and substantial programme of liberal or general studies, amounting to no less than a quarter of all course-work in a four-year undergraduate programme. This requirement is also extended to post-baccalaureate degrees, in the sense that undergraduate work with a sufficient general education component must at least be a prerequisite to those post-baccalaureate programmes.

V. Steps Toward an Accreditation System in India

(1) These above features of an operational accreditation system will serve as benchmarks in establishing a system of institutional accreditation in the Indian context as a means of reorganising the assurance of educational quality, of making expert academic consultation widely available, and as a way of mobilising local initiative and energy through self-definition and continual self-appraisal.

(2) The initial impetus for an accreditation system will come from the UGC, through its selection of a group of about twenty good autonomous institutions for initial candidature.

Until such time as twenty institutions are accredited, there will be a provisional **Accreditation Association** made up of candidate institutions, the original twenty plus those that are later admitted into candidature. After twenty institutions are accredited they will constitute the core of the **Accreditation Association** or **Accreditation Council** and candidate institutions will thereafter have observer status. The Association will be an autonomous, self-governing body—to begin with, a registered society. It will meet once a year.

Each institution's representative to the Annual Meeting of the Association will be appointed by the administrative head of the institution, the vice-chancellor or the principal. At the Annual Meeting the representatives will elect **Commissioners** the members of the **Accreditation Commission**, the body which will make the final decision on accreditation. The Commission will comprise fifteen members, serving three-year terms. Eventually, the appointments will be staggered, with about one-third of the positions being vacated each year. Commissioners will be drawn from institutions of different types as well as from outside the academic world. From among these the Association representatives will at their first meeting elect a **Chairman of the Commission** and an **Associate Chairman** for one-year terms. Subsequently, the Associate Chairman will succeed the Chairman, and a new Associate Chairman will be elected annually. The Commission will meet about four times a year.

The Accreditation Commission will, with the consent of the University Grants Commission, initially and then whenever necessary appoint a Director of Evaluation, who will conduct the day-to-day activities of the Commission with the help of a secretariat of professional and support staff. The Director's term will normally be five years, but can be terminated earlier for valid reasons by the Accreditation Commission. His status, method of appointment and terms and conditions of service will be comparable with those of a Vice-Chancellor of a University.

The Commission will also, with the consent of the University Grants Commission, appoint an **Associate Director of Evaluation,** who will report to the Director. He will normally succeed the Director,

The Director will supervise the codification of the principles, guidelines, methods and observations of the accreditation agency into a Handbook, and will submit these to the Commission for its approval.

The Director will draw up a list of potential evaluators, with critical biographies, for the approval of the Commission. The accreditation agency will keep on file a list of at least a hundred approved evaluators. They will serve in an honorary capacity. The other terms of their association with the Commission, will be determined by the Commission.

The ultimate decision on accreditation will be made by the Commission after seeing the self-appraisal and evaluation reports and related material.

The Accreditation association will eventually be encouraged to function on a zonal basis, for reasons of tractability and economy.

(3) The following are some of the major points on which an institution will face scrutiny in the process of accreditation, and which it will address in its self-appraisal :

(a) **Institutional Mission and Objectives**

These should be practical, appropriate to the university/collegiate level, and socially responsible.

(b) **Evaluation and Planning**

There should be sharply defined institutional goals and effective mechanisms for periodic, systematic self-evaluation, planning and review of objectives. The process should take into account state and central plans.

(c) **Organisation and Governance**

There should be published a clear statement based on the acts and statutes defining the respective powers, functions, responsibilities of each organisational component (Senate, Executive Council, Academic Council, governing board, administrative officers, faculty, departments, students and other constituencies) and their inter-relationships. Provisions for the distribution of authority and responsibility should be depicted in an organisational chart that represents the actual working of the institution. The faculty must have a major role in shaping and conducting academic policy. There should be provision for the consideration of student views in matters of direct and reasonable interest to them. The public interest should be adequately represented in the determination of the overall policies of the institutions.

(d) **Programmes and Instruction**

Every undergraduate programme whether professional, specialised or general ought to show an appropriate regard for the humanities, natural sciences and social sciences. Usually, at least a quarter of each student's programme should consist of courses in these areas, but experimentation with other ways of meeting the end of well-roundedness should be encouraged. Courses should adhere to clearly defined institutional standards of scholarship. There ought to be appropriate means for monitoring the effectiveness of the educational programmes. (The development of some of these, such as a National Testing Service, will be the job of educational bodies and authorities outside the institution). There should be some systematic procedures that tend to assure that assessments are fairly awarded while at the same time preserving the integrity of the educational process. There should be some means of assuring that the number of sessions planned for a course are actually held, and that the students and teachers are fulfilling their responsibilities in respect of the course.

(e) **Faculty**

The qualifications and numbers of the faculty should be adequate to discharge their academic responsibilities. Their recruitment, promotion, retention and security of tenure and other conditions of service, particularly the teacher's academic autonomy, in determining the content of the course, the teaching method and the method of evaluation, should be at a level consonant with the dignity of the academic profession. There ought to be formal of informal forums for open communication amongst the faculty and between faculty and administrative officers.

(f) **Student Services**

There should be an orderly and ethical admissions procedure, and compliance in spirit as well as law with special provisions for disadvantaged groups. Academic, personal and career counselling services, grievance-redressal services, health services and services for foreign students and the handicapped should be available. There should be clear published statements on student rights and responsibilities. Current information about graduates and their progress in careers should be maintained, and the interest of alumni in the development of the institution encouraged.

(g) **Library and Learning Resources**

Books and non-print materials and library services, study space and staff should be adequate to the educational programme and there should be systematic planning for future needs.

(h) Physical Facilities

Buildings, grounds and equipment should be adequate to meet the needs of the institution. They should be well-maintained and aesthetically pleasing. Classrooms and laboratories ought to be properly equipped and adequate in number and size.

(i) Financial Resources

The institution should be financially stable, with sufficient resources to carry out its objectives into the foreseeable future. It should have control of its financial resources and budgetary procedures, and be free from undue influence or pressure from external funding sources. There should be a clearly defined and consistently implemented process by which the budget is established and resources are allocated. There should be a yearly external audit, reviewed by the appropriate individuals or groups in the institution.

(j) Ethical Practices

In all its dealings the institution should show concern for basic values and observe the spirit as well as the letter of legal requirements.

(k) Publications and Advertising

The institution should publish a catalogue or handbook describing clearly and accurately its objectives, its admission policies, each academic programme or course of study, the requirements for a degree or other recognition, the members of the faculty with their academic qualifications, the fees and charges, the refund policy, the learning and physical resources, and other information the institution considers significant.

(4) The Accreditation Agency should be a self-financing institution. Its recurring expenditure should be met entirely from the membership fees paid by member institutions. The fees paid by the institutions should be accepted as an admissible item of expenditure for purposes of grants-in-aid to them. The initial expenditure on setting up the Accreditation Council should be met by the UGC for a period of three years.

(5) Within five years of the setting up of the Accreditation Council, only accredited institutions will be eligible for Central funding. Some painful decisions will have to be made, but if there is to be any point to an accreditation system, it must be operated with great integrity, and therefore there must be no exceptions.

State governments will be free, as before, to found, charter or recognise, and to fund, new institutions, but those institutions will not receive any Central funds until they become accredited. Funding, development or support of as yet unaccredited state institutions will be entirely the concern of the states.

For the founding of a new Central institution, separate funds will be allocated to sustain it until it wins accreditation, and planning for the new institution will be undertaken with the Requirements of Candidature in mind. If a central institution fails to win accreditation even after a reasonable period of time and investment of funds, the Accreditation Council will recommend its closure.

6. The implications of non-accreditation and loss of accreditation, including the consequences for faculty and past and present students, must be spelled out in advance and publicised.

Denial or loss of accreditation must not come as a surprise. Consultancy services recognised by the Association should be also be available to provide an early warning of deficiencies and advice in dealing with them.

7. The right to academic self-determination of the individual academic, the department, and the college or university is fundamental. The prima facie satisfaction of it (as evidenced, for example, by the rules and composition of the statutory bodies of the institution) will be a Requirement of Candidature.

8. Autonomy is not a prize for the deserving. It is a precondition for any worthwhile work. So it cannot be made a consequent to accreditation or even to candidature, but must precede them.

The accreditation system is designed, above all, to make college (and university) autonomy possible by shifting to a mode of accountability that is horizontally rather than vertically organised, and which therefore does not stifle local initiative.

The current UGC guidelines on autonomy envision two degrees of autonomy for colleges. The first, more properly designated "semi-autonomy", is under the aegis of the erstwhile affiliating university, which, along with other external agencies, has its representation on all the college's statutory bodies. Semiautonomy does not go far enough in enabling teachers to determine their work situation, alienating them from their jobs. And it makes the statutory bodies cumbersome and open to manipulation by persons without a legitimate stake in them. Semi-autonomy, then, though it is a great improvement over affiliation should be seen as a stop-gap arrangement.

After the accreditation system is in place, colleges should be in a position to avail of the second, more complete degree of autonomy, under conferment of "deemed university" status from the UGC, a possibility envisioned by the UGC guidelines and also by the National Policy on Education, 1986.

As for affiliated colleges proper, as distinct from semi-autonomous ones, none of them can be granted candidature by the accreditation system because their set-up is by its nature too violative of individual and departmental academic autonomy. Since accreditation involves a "yes" or "no" to the institution as a whole, no matter how complex it is, affiliating universities will themselves not be eligible for candidature until they have divested themselves of these colleges at least to the extent of semi-autonomy.

Since, within five years of the setting up of the Accreditation Council, only accredited institutions will be eligible for Central funds, the goal of autonomy (or semi-autonomy) is envisioned for all colleges by then.

The UGC has decided to grant autonomous status to 500 colleges by the end of the current five-year plan (1990). Special funds will have to be made available by the UGC during the intervening period to facilitate the transition of the remaining colleges, so that they may all have a fair chance to qualify for accreditation before the deadline.

Some of the conditions for the granting of autonomous status by the UGC will be similar to the conditions for the granting of candidature by the Accreditation Council. Nevertheless, these conferments by two distinct bodies should be kept distinct.

(9) There are a variety of causes which will keep an institution from accreditation, and the appropriate response of the concerned authority will vary accordingly. In most cases what is called for will be a matter of reorganisation and some additional finances, but not very substantial expansion of faculty and facilities. But some present institutions are simply too small to be able to offer a satisfactory educational programme particularly in light of the claims of general education. In such cases, consolidation with other institutions would be called for.

(10) An emphasis on general education will be a primary concern of the accreditation system and will be enforced as a Requirement of Candidature. There is no other way to realize a large number of the curricular goals enunciated in the National Policy on Education, 1986. Every college must make the student aware of the range of human knowledge; it must increase the student's capacity for the organisation and expression of thought; it should provide an opportunity for the development of basic learning skills and foundations necessary for success in mastering advanced specialised subject matter; it should develop within students the capabilities of forming independent judgments, weighing values, and understanding fundamental theory and it should encourage the pursuit of lifelong learning.

The value of elective courses, within the field of specialisation but more especially outside of it, should be emphasized, as this is the primary foundation of interdisciplinary study, which the new education policy is committed to, It will also give new life to some of the fields of study that few would like to specialize in but many would like to study, which are presently wasting away.

The mode of implementing general education, whether through distribution requirements, foundation courses or some other modality, will be left up to the institution.

The system of credits and internal evaluation (not necessarily examination based), modularity of courses of study, and admission to the college as a whole rather than to a department, will be included in the Requirements of Candidature.

VI. Linkages

(1) The Association of accredited institutions of higher education can exert a positive influence on the standards of secondary education, through recognition of the certificates of various boards. They can also recognise independent schools, and help them to establish an accrediting Association of Secondary Schools with strong linkages to the higher education Association.

(2) Professional institutions in fields such as engineering, medicine, architecture, management and law should be brought under the scope of institutional accreditation through the aegis of the proposed National Apex Body for Higher Education. Institutional accreditation should be made a prerequisite to professional accreditation.

(3) In assessing the educational effectiveness of an institution, evaluators will want to have some concrete measure of educational outcomes. For this the development of the National Testing Services, providing objective and up-to-date certification in a wide variety of subjects, will be extremely helpful.

VII. Financial Implications

The financial (and political) implications of bringing most of the nation's institutions of higher education upto the level necessary for accreditation must be squarely faced. Even though the implementation of accreditation is in itself bound to improve the cost-benefit ratio, effective education cannot possibly come so cheaply as what is now prevalent.

VIII. Recommendations

This report should be widely circulated in the academic community for a full scale discussion on the idea of an Accreditation & Assessment Council.

Seminars on Accreditation and Assessment Council

While considering the Gowariker Committee Report on Accreditation and Assessment Council, the University Grants Commission (UGC) at its meeting on 21st January, 1988 accepted the recommendations of the Committee that "this report should be widely circulated in the academic community for a full scale discussion on the idea of an Accreditation and Assessment Council." As a follow up action, the UGC proposes to hold four regional seminars and a national seminar to discuss the Report as per details below :

Region	State/Union Territories*	Venue & Date of the Seminar (Tentative)
North	Punjab (3) Himachal Pradesh (2) Jammu & Kashmir (2) Delhi (5) Haryana (2) Rajasthan (5) Western Uttar Pradesh (14)	University of Jammu, Jammu 21st April, 1988
West	Gujarat (7) Madhya Pradesh (10) Maharashtra (9)	Gujarat University, Ahmedabad 28th April, 1988
South	Andhra Pradesh (12) Karnataka (6) Kerala (4) Tamil Nadu (9)	Bangalore University, Bangalore 4th April, 1988
East	Assam (2), Bihar (8) Manipur, Meghalaya & Orissa (6) West Bengal (9) Arunachal (1) Eastern Uttar Pradesh (4)	Jadavpur University, Calcutta 11th April, 1988
National Seminar	Convenors of Regional Seminars, Representatives from Ministry of Human Resource Development, Eminent Educationists & others.	To be announced

*Figures given in brackets indicate the number of Universities in a State excluding Agriculture Universities.

AIU SEMINAR SERIES

IMPLEMENTATION & MONITORING OF NATIONAL POLICY ON EDUCATION

(HIGHER & TECHNICAL)

Objectives

The National Policy on Education (NEP) and its Programme of Action clearly identified certain parameters of Technical and Higher Education which need to be strengthened and a major share of responsibilities for its implementation rests with universities and other educational institutions. The Department of Education, MHRD, the UGC and several individual universities have taken up implementation of these programmes in their own ways. In the recently concluded National Conference on "Role of Universities in Implementation of New Education Policy" held at Osmania University on Dec. 18-19, 1987 as a part of Association of Indian Universities' Annual Meeting, several Vice-Chancellors, educationists and experts deliberated on several identified issues namely :

1. Human Resource Development,
2. Consolidation and Expansion of Institutions,
3. Academic Staff Colleges,
4. Distance Teaching/Learning,
5. Youth Services; Sports and Physical Fitness Programmes,
6. Teachers Training,
7. Restructuring of Courses,
8. Research and Extension,
9. Education in Human Values,
10. Autonomous Colleges and Deptts.
11. Evaluation and Accreditation of Institutions,
12. State Councils for Higher Education, and
13. Rural Universities,

and after detailed discussions have come out with recommendations for future action. Also, several universities have sent a status report on their own implementation in the following areas :

A. Consolidation and expansion of institutions
B. Autonomous colleges and/or autonomous departments;
C. Restructuring of courses;
D. Teachers Training and Recruitment;
E. Strengthening of Research;
F. Improvement in Efficiency;
G. Mobility of Teachers and Students,
H. Making the system work;
I. Research and Development;
J. Education for women, SC & ST, Backward minorities and handicapped;
K. Evaluation Process and Examination Reforms;
L. Youth & Sports;
M. Language, Development and Cultural Perspective; and
N. Media and Educational Technology.

In the backdrop of the above, the Association of Indian Universities in collaboration with the UGC and a local host university in every region, proposes to hold four of these 3-day National Seminars on :

(i) monitoring and evaluating the status of implementation in the four area groups,
(ii) drawing up further plan of action for the remaining period of 7th plan,
(iii) devising and developing methodologies for monitoring and formats for assessing the progress of implementation, and
(iv) considering possible alternative strategies of implementation particularly with reference to problems faced.

Seminar I

Venue & Host University

New Delhi, Indian Institute of Technology

Topics for Discussion

1, 2, 3, 4 & 5

Dates

April 14—16, 1988

Seminar II

Proposed Venue & Host University

Imphal, Manipur University

Proposed Dates

May 19—21, 1988

Topics for Discussion

F G H & M

Seminar III

Proposed Venue & Host University

University of Poona

Proposed Dates

June 27—29, 1988

Topics for Discussion

6, 7, 8 & J

Seminar IV

Proposed Venue & Host University

Bangalore, Bangalore University

Proposed Dates

July 25—27, 1988

Topics for Discussion

9, 10, 11, 12

Participation. The participation to the Seminar can be either in the form of presentation of a paper or through discussions. A university can sponsor two delegates to one of these Seminars, Dean or Professor involved with actual implementation of the programmes besides the Vice-Chancellor representing the University. The participants thus sponsored will be paid TA/DA from the Association of Indian Universities and the boarding/lodging will be provided free of cost.

Receipt of Papers. The papers (type-written and in duplicate) should reach the Convenor latest by the dates mentioned :

SEMINAR I	April 1, 1988
SEMINAR II	May 1, 1988
SEMINAR III	June 1, 1988
SEMINAR IV	July 1, 1988

Seminars Chairman

Prof. S.K. Agrawala
Secretary, AIU

Seminars Convenor

Dr. V. Natarajan
Director (Research)
Association of Indian Universities
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Madurai Kamaraj University

Notification No. 8/R/88

Applications in EIGHT COPIES on plain paper are invited for the following posts with full particulars in the PROFORMA given below and copies of testimonials and such other additional information as the applicants may wish to give.

1. Director, Academic Staff College
2. Director, Institute of Correspondence Course and Continuing Education
3. Controller of Examinations

Essential Qualifications

Director (Academic Staff College)

Applicants should possess a Doctorate Degree in Education/Educational Psychology with ten years of UG/PG teaching and research experience in the age group of 45 to 50 (subject to relaxation in the case of deserving candidates).

Director (Institute of Correspondence Course and Continuing Education)

Applicants should possess a Doctorate Degree either in any discipline with ten years of UG/PG teaching and research experience with wide knowledge in the administration of non-formal educational institutions.

Controller of Examinations

Applicants should possess high academic qualifications and administrative experience, preferably knowledge pertaining to University administration and conduct of examinations.

Scale of Pay : (for the three posts)

Rs. 1500-60-1800-100-2000-125/2-2500 with usual allowances.

Age Limit : 55 years.

1. Name of the applicant
2. Address (To which communication may be sent)
3. Age/Date of Birth
4. Community (FC/BC/SC/ST)
5. Present Position
6. Academic Qualifications (with dates on which degrees were taken)
7. Experience
    (a) Teaching : 1. Degree level
    2. P.G. level
    (b) Research (with publications, if any)
    (c) Administration
8. Distinctions/honours
9. Membership of professional, academic or scientific bodies.
10. References (with names & addresses)
11. Testimonials
12. Any other information
13. Signature of the Applicant

Selected persons will be appointed on contract basis for a period of three years.

Candidates desiring to apply for one or more posts should send separate applications for each (in 8 copies).

The applications may be sent in a sealed cover addressed to Dr. T. Sivasankaran, Registrar, Madurai Kamaraj University, Madurai-625021 on or before **4th April, 1988** by Registered Post. The name of the post for which the candidate is applying may be superscribed on the cover.

Madurai-625021.
Date : 11.3.1988.

Dr. T. Sivasankaran
REGISTRAR

Science Education and Communication

A Centre for Science Education and Communication has been constituted in the University of Delhi to serve as an institution in which studies can be carried out by teachers and students and other interested individuals, for the generation of ideas and materials for the improvement of science education at university and school levels; and for the promotion of a wider interest in science and scientific issues, through all means of communications. The Centre has a governing council, programme advisory council, programme implementation committee and a council of associates.

The Programme Advisory Council shall perform the following functions :

(i) Monitor and evaluate the ongoing programmes of the Centre and examine fresh proposals,

(ii) Formulate long term plans for the activities of the Centre,

(iii) Constitute panels of experts for scrutinising various project proposals,

(iv) (a) Constitute Resource Groups working in various Colleges and University Departments to carry out the programmes of the Centre at the respective institutions,

(b) Form working groups based at the Centre for specific purposes,

(c) Affiliate those groups, clubs, and organizations involving students and teachers of the University who are engaged in the activities which are of interest to the Centre. Such groups will be eligible for financial and other assistance from the Centre, subject to the approval of the Governing Council on a case to case basis,

(v) Formulate collaborative programmes in association with groups or Institutions working in areas within the Centre's areas of interest, and

(vi) Perform such other functions, as may be assigned to it by the Governing Council from time to time.

Biographical Dictionary of South Indian Women

The Mother Teresa Women's University proposes to bring out a Biographical Dictionary on South Indian Women. To be the first attempt of its kind in India, the university feels that the Dictionary will help eradicate inequalities and promote national integration which are the principal factors for the promotion of international understanding.

The Dictionary will include biographies of women from all walks of life—politics, religion, social work, education, journalism, science, law, business, industry and also writers poetesses, musicians, dancers, actresses and sports women who made tangible contribution either directly or indirectly to the growth of the Nation.

The Dictionary will not only be of use to the students of history but also to the general public. Apart from being used as a standard reference book, it is intended to serve as a light and pleasant informative reading material even for those who are not interested in any serious study of history, politics and social development of South India. In addition to this, it will help unveil the various contributions of women which are either kept in the dark annals of books or are unaccountable.

It is also intended as a manual for students of women's studies, who are prepared to venture into attics, old people's parlours, art galleries, museums, libraries and record offices in their quest for the history of women and it will prove helpful both to individuals and to those who work on women's studies. This study will widen the field for the easy inclusion of needed biographies into the curriculum, which have been absolutely forgotten in the annals of history.

Further details about the project can be had from Dr. A Suryakumari Prof. & Head, Department of Historical Studies, Mother Teresa Women's University, Kodaikanal-624102.

Orientation Programmes for Academic Counsellors

Hyderabad Regional Centre of Indira Gandhi National Open University has commenced a series of Orientation Programmes for Academic Counsellors for Preparatory Courses of Bachelor's Degree Programme and other programmes. The first Programme was conducted on 12-13 March, 1988. 35 Academic Counsellors drawn from colleges, universities and institutes of higher learning in South India participated in the Programme. The Orientation Programme comprised lectures, discussions and audio video presentations on open university and distance education systems, multimedia instructional system, face-to-face and correspondence tuition, an overview of university's modular academic programmes, etc.

Academic Counsellors would provide tutoring and counselling to University's students through University's network of 6 Regional Centres and 100 Study Centres spread over the entire country. Study Centres function on the premises of existing higher educational institutes and draw spare infrastructural and human resources of those institutions.

National Open University is currently running Diploma Programmes in Management, Distance Education, and Creative Writing in English besides Bachelor's Degree Programme. Preparation is on for courses in Food and Nutrition, Library Science, Rural Development, Higher Education, Aeronautical Engineering, etc. The teaching system of University which is cost effective and cost efficient includes print materials, broadcast audio visuals, non-broadcast audio visuals, practical work and inter-personal communication.

Professional Development in Higher Education

A Centre of Professional Development in Higher Education has been established at the University of Delhi. The Centre would organise orientation programmes as well as refresher courses of varying durations based on a discipline or within an interdisciplinary framework or on selected techniques and methodologies. Registration in any of these programmes or courses would be done on the sponsorship by the colleges and departments. The courses would comprise intensive learning exercises wherein an adequate amount of teaching would be complemented by a large amount of guided self-learning through such instrumentalities as seminars or term papers.

With a number of advanced Centre of Studies in various subjects in the University, Centres of Special Assistance and a large number of research projects being undertaken in various departments in subjects along the frontiers of knowledge, this centre for professional development would be in a position not only to look after the development programmes for the faculty of the University and its colleges, but would be in a position to provide such facilities for faculty member from other Universities. Prof. N.K. Ray, a distinguished scientist has been appointed as Director of this Centre.

News from Agril. Varsities

Varsity Status for NDRI

A four-member Committee of the UGC is reported to have recommended a deemed university status for the National Dairy Research Institute (NDRI), Karnal (Haryana), in view of its immense contribution in the field of milk production and selective conservation of breeds and its being the only institute of its kind in the whole of South-East Asia and West Asia. The institute runs several undergraduate, postgraduate and Ph.D. programmes in dairying on trimester basis.

NDRI plans to add master's degree programme in bio-technology and a Ph D. programme in the same discipline once the deemed university status is granted to it. At present, it is running Ph.D. programme in 10 disciplines including animal genetics and breeding, animal physiology, animal nutrition, dairy chemistry, diary bacteriology, animal biochemistry, dairy technology, dairy engineering, dairy economics and dairy extension.

It also runs master's programme in 12 disciplines of dairying, bachelor's programme in dairy technology and postgraduate diploma in analytical research techniques, quality control in dairy processing and management of dairy enterprises.

Scientists from Nepal, Tanzania, Vietnam. Iraq, Afghanistan, Philippines, Egypt, Ethiopia and Bangladesh are being trained by the institute on regular basis.

Dairy Science Centres

The Indian Council of Agricultural Research (ICAR) is reported to be considering a proposal to set up four regional dairy science centres to impart dairy education in the country. One centre each is likely to be set up in north, south, east and west parts of the country. The centres would have uniform syllabi and a common entrance test on all-India basis.

Another major proposal recommended by a joint panel of the National Dairy Development Board (NDDB) and ICAR is to increase the duration of dairying course by one year. The addition of one year to the existing four-year course would be utilised for in job training for which the scientists would be paid.

Workshop on Renewable Energy Sources

A four-day workshop of the All India Coordinated Project on renewable sources of energy for agriculture and agro-based industries was held at Dharwad recently. Jointly organised by the Indian Council of Agricultural Research and the University of Agricultural Sciences (UAS), Dharwad, the workshop was inaugurated by Dr. J.V. Goud, Vice-Chancellor. In his address Dr. Goud called for developing cheap and reliable technologies with locally available materials in order to popularise renewable sources of energy in rural areas. He said he was happy that groups of Agricultural Engineers and Microbiologists were actively engaged in exploring energy from renewable sources and also economising its use for maximum benefit.

Dr. Goud wanted that the dissemination of information on use of renewable sources of energy must be carried out at acceptable time-tested levels. The progress achieved by China in the sphere of biogas was entirely due to better techniques of dissemination of successful field-testing, he said. He also suggested that the new energy sources should facilitate a link between biomass and quality of soil so as to intergrade livestock as waste producers and providers of mechanical energy.

Dr. T.P. Ojha, Director, Central Institute of Agricultural Engineering, (CIAE), Bhopal presided over the function. About 50 scientists from various universities participated in the workshop.

Combating Heliothis

A National Workshop on the Management of the American cotton bollworm, *Heliothis* was held at Tamil Nadu Agricultural University (TNAU), Coimbatore recently. Dr. V. Rajagopalan, Vice-Chancellor, TNAU, in his presidential address emphasised the need for an organised surveillance system on *Heliothis* and also integrated pest management to avoid loss in yield. He also released a book entitled "Resurgence of sucking pests" and the first issue of the "Journal of Biological Control".

Dr. M.V. Rao, Special Director General, ICAR, New Delhi appreciated the collaborative efforts of TNAU and the State Development Departments in implementing the pest surveillance and integrated management strategies to control *Heliothis* as well as other pests on major crops and desired other States to emulate these efforts. Mr. A. Viswanathan, Director of Agriculture, Madras pointed out the role played by the State Department of Agriculture in pest monitoring from 7,250 points of the State. Dr. S. Jayaraj, Director, Centre for Plant Protection Studies, TNAU in his key note address outlined the future thrust of research on the management of *Heliothis* by the University.

Waste Land Development in Marathwada

The Marathwada Agricultural University in collaboration with the Vanrai Institute for Integrated Forestry Systems, Pune organised a seminar on waste land development at Parbhani recently. Shri Mohan Dharia, former Minister, Government of India, who inaugurated the seminar, stressed the need for afforestation in Maharashtra State in general and in the Marathwada region in particular. He pointed out that the objective of the seminar was to study the waste land development problems and work out integrated forestry programmes for the Marathwada region.

Dr. P.V. Salvi, President, Association of Indian Universities and Vice-Chancellor, Marathwada Agricultural University, who presided, stressed the need to strengthen research on social forestry. He

Professor Mukherji Passes Away

Prof. Sunil Kumar Mukherji, Former Vice-Chancellor, Rajendra Agricultural University, Pusa passed away on 5th March, 1988 at Delhi. An eminent Agricultural Scientist, he successfully combined teaching, research and administration during his eventful career. He joined Agricultural Department, Bihar in 1944, taught Agronomy at Bihar Agricultural College 1950-55 and Ranchi Agricultural College 1955-59. Before joining Indian Council of Agricultural Research in 1962, he also served as Principal, Tirhut Agricultural College, Dholi and also Director, Regional Research Institute, Pusa. He served ICAR with distinction where he rose to the position of Deputy Director-General. He returned to his home state to serve as the Vice-Chancellor, Rajendra Agricultural University for two years. Prof. Mukherji published a number of scientific papers on Agronomy. His major research contribution has been evolution of three promising strains (T3, T10 and T15) of **Pennisetum Pedicellatum** grasses as outstanding forage crops far superior to Sorghum or Sudan grass.

In his death the country has lost an eminent agricultural scientist and educationist who was a source of inspiration to his innumerable students and admirers.

emphasised the necessity to identify species of fruit and forestry plants which can be grown in the Marathwada region. He said that a large number of plants preferably in polythene bags should be made available to farmers at places convenient to them and at reasonable prices.

Shri Balasaheb Bharde, former Speaker of the Maharashtra Legislative Assembly also addressed the seminar. He said that the future of the country was dependent on the development of waste lands and emphasised the need for financing from banks and involvement of T&V system in Agro-forestry work.

News from Abroad

Open University Expansion Plans

European distance teaching universities could be linked in an association within five years. This was stated by Dr. John Horlock, Vice-Chancellor of Britain's Open University (OU) while addressing the graduates in Brussels. The new arrangements would facilitate course and credit transfers across national boundaries.

Dr. Horlock was outlining the university's plans for expansion in Europe. Advanced technologies feature strongly with the development of Saturn (Scientific and Technological Updating by Remote Networks) which has enabled the OU to feature in three projects funded by the EEC's Comett programmes.

The only outlet for students to take OU courses outside Britain (except for forces posted overseas), the scheme started experimentally in 1982 offering five courses through the British Council in Brussels, for Britons only. It later expanded the number of courses on offer, and opened up to people of other nationalities living in Belgium and Luxembourg.

Over 100 courses are now on offer, including four of the five foundation study programmes—arts, mathematics, social sciences and technology. The fifth, science, remains unavailable, mainly because of problems sending chemical kits through the international mail.

Belgain, French, German and Italian nationals, as well as British, were among new OU graduates who received their degrees from Dr. Horlock. The graduates—most of them qualifying for bachelors degrees, but including one M.A. awarded to retired German Dieter Stumpp—have all been studying through the OU's Belgium and Luxembourg Scheme.

Taxing Graduates

Australia may become the first developed country to introduce a graduate tax. According to the Federal Minister for Employment, Education and Training, Mr. John Dawkins, a committee has been set up, under the Chairmanship of Mr. Neville Wran, to examine alternative forms of financing higher education, including re-introducing tertiary fees and a graduate tax for funding the government's plans for a huge expansion of higher education over the next 12 years.

Under a proposal before a federal government committee future graduates would pay a 1 per cent tax levy on their salaries for 10 years. The tax could raise more than A $ 350 million over a 10 year period.

According to a green paper on higher education, proposals to increase the number of graduates from 88,000 in 1986 to 125,000 by 2001 could lead to a budget shortfall of up to A $ 1200 million.

In a submission to Mr. Dawkins and the Wran Committee, a Melbourne academic has argued strongly that a 1 per cent tax surcharge on the salaries earned by graduates would be a fairer and more economical way of implementing a "user-pays" system than tertiary fees.

In the submission, the head of the urban studies unit at the Footscray Institute of Technology, Mr. Rodger Eade, points out that the average salaries of Australian males with bachelor degrees are more than 50 per cent higher than those with no qualifications.

Sports News

Varsities Team for Rowing Championship

An 11 member Indian Universities Team has been selected for participation in the Senior National Rowing Championship for men. The team is at present attending the coaching camp at Calcutta University under the supervision of Dr. Anirudha Ray. The Nationals will be held at Calcutta from March 31 to April 3, 1988. The members of the team are: Ajay Gupta, Amit Chatterjee, Manoj Menon, Bimla Ghosh (Calcutta Univ.); K.M. Sridhar, S. Narasimhan (Capt.), Shiv Kumar, Sanjay Raghurao, (Madras Univ.); Asif Rehan, A. F. Khan, and Arif Irfan (Osmania Univ.).

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month' while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research scholars and students of education are welcome to use these resources. The Library is open from 9-00 a.m. to 5-30 p.m. Monday through Friday. Access can also be had through Inter library loan for which requisition must be made through your Librarian.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

SOCIAL SCIENCES

Library Science

1. Sharma, Dev Raj. *A critical evaluation of reference and bibliographical sources in Sanskrit language and literature.* Panjab. Dr. Rama Kant Sharma and Dr. H.R. Chopra.

Psychology

1. Arora, Anu. *A study of correlates of sensation seeking among college students.* Panjab. Dr Meena Sehgal and Dr. Anuradha Bhandari.

2. Bhatia, Sanjai. *Creativity, intelligence and sex as determinants of extra sensori perception among children.* Panjab. Dr. Meena Sehgal and Dr. Anuradha Bhandari.

3. Jas Kiran Kaur. *Perception of child rearing practices, adjustment and acadmic achievement of children of working and non-working mothers.* Panjab. Prof. (Mrs) Vidhu Mohan.

4. Khanna, Jyotsana. *Certain personality and socio-demographic correlates of clothing behaviour and clothing motivation.* Panjab. Dr. Promila Vasudeva and Dr. Sudesh Gakhar.

5. Poonam *A study of social and psychological factors in families with handicapped children.* Panjab. Dr. (Mrs) Prem Verma.

6. Rajinder Pal Kaur. *Teacher effectiveness in relation to personality, motives, job satisfaction and quality of working life.* Panjab. Dr. (Miss) Meena Sehgal.

Sociology

1. Jodhaka, Surinder Singh Jaisingh. *Development and debt : A sociological study of the changing credit relation in Haryana agriculture.* Panjab P.N. Pimpley.

2. Sharma, Priya. *Communalism in Punjab and its sociological impact on the Punjabi Hindus.* Panjab. Dr. K. Gopal Iyer.

Social Anthropology

1. Bhatia, Kiran. *Family power structure : A comparative study of rural and urban women of Haryana.* Panjab. Dr. (Mrs) S. Mehta and Dr. (Miss) Pam Rajput.

2. Pakyntein, Valentina. *Kahsi women in an urban milieu: Study of urbanization in Shillong and changing position of Khasi women.* Delhi. Dr. J.S. Bhandari.

Political Science

1. Bajaj, Prem Kanwal. *Pressure groups in Panjab agriculture 1966-86.* Panjab. Prof. Iqbal Nath Chaudhary.

2. Dhand, Raj Paul. *Deliniation of air-space and outer space : A problem in aero-space law.* Panjab. Dr. (Miss) Pam Rajput.

3. Issa Jeries Issa Al-Mdanat. *The Arbs and the Palestine problem : A study of Egypt's attitude toward the Palestine liberation organization (PLO) 1948-1987.* Panjab. Dr. K.K. Pathak.

4. Mathew, George. *Impact of trade unionism on the industrial relations in Kerala.* Kerala. Dr. D. Jayadevadas.

5. Negi, Sudesh. *Political and social implications of the adult education : A cash study of Himachal Pradesh.* HP. Dr. Javeed Alam.

6. Parmjit Singh. *Geopolitics of Indo-Pakistan equation in the Indian Ocean.* Panjab. Prof. M.M. Puri.

7. Priyadarshini, Alka. *The problem of ethnicity and the separatist movement in Sri Lanka.* Panjab. Dr. (Miss) Pam Rajput.

Economics

1. Deshmukh R.K. *Growth centre—A strategy for rural development : A case study of Warana cooperative complex.* Shivaji. Dr. S.S. Sahasrabudhe.

2. Deshpande, S.V. *A study of the problems of the decentralized sector of the textile industry in Ichalkaranji.* Shivaji. Dr. S.S. Sahasrabudhe.

3. Gupta, Vinod Prakash. *Integrated rural development : A Gandhian perspective : A case study of District Shimla, H.P.* Panjab. Dr. S.L. Malhotra and Dr. Jai Narain.

Public Administration

1. Bansal, Sangeeta. *Industrial cooperatives : An analytical study of the Haryana State Industrial Cooperative Federation Limited, Chandigarh.* Panjab. Dr. B.B. Goel.

2. Dogra, Anil Kumar. *An analysis of the management of the Himachal Pradesh State Cooperative Marketing and Consumer Federation Limited, Shimla.* Panjab. Dr. B.B. Goel.

3. Duggal, Jatinder Kumar. *Industrial Finance Corporation of India : A critical study of its organisation and working.* Panjab. Dr. (Mrs) Shyama Bhardwaj.

4. Jagroop Singh. *Judicial administration : A study of District Courts Chandigarh.* Panjab. Dr. B.B.Goel.

5. Shiv Kumar. *Hospital administration : A study of General Hospital, Sector 16, Chandigarh, U.T.* Panjab. Dr. S.L. Goel.

6. Vaid, Pradeep Kumar. *An analysis of management of Himachal Pradesh Tourism Development Corporation Limited, Shimla, HPTDC.* Panjab. Dr. (Mrs) Shyama Bhardwaj.

Military Studies

1. Bhatia, Satnam Singh. *The I.N.A. and India's freedom struggle.* Devi Ahilya. Dr. O.P. Sharma.

2. Chouhan, Madan Singh. *Nishastrikaran kee samasya aur Bharat kee bhumika.* Devi Ahilya. Dr. O.P. Sharma.

3. Sharma, Jyoti. *Defence and foreign polity : An analytical study of the interaction of defence and foreign policies of India from 1962-1971.* Devi Ahilya. Dr. O.P. Sharma.

4. Yadav, Tara Chand. *Sino-Vietnam War of 1979 : A case study of balance of power in South East Asia.* Devi Ahilya. Dr, K.P. Patidar and Harvir Sharma.

Education

1. Baltej Singh. *Effectiveness of inquiry training model of seaching on cognitive development and acquisition of process skills in relation to self concept and intelligence.* Panjab. Dr. G.S. Sodhi.

2. Behal, Vinay. *Effectiveness of different models of teaching on acquisition of concepts and attitude towards mathematics in relation to intelligence and cognitive style.* Panjab. Dr. G.S. Sodhi.

3. Gill, Tejindarjit Kaur. *The effect of training strategies on creative problem solving skills and cerebral dominance in relation to intelligence, personality and cognitive style.* Panjab. Dr. G S. Sodhi.

4. Harjinder Singh. *Effectiveness of different integration strategies for developing teaching skills among student-teachers: A mesoteaching approach.* Panjab. Dr. G.S. Sodhi.

5. Jatinder Pal Singh. *A study of selected motor fitness components of physical education majors in relation to selected psycho-physiological variables and body composition.* Panjab. Dr. Harnam Singh.

6. Joshi, V.K. *A comparative study of the efficacy of some stimulus media.* Banasthali. Dr. C.B. Mathur.

7. Mathur, Madhu. *A study of spontaneous art of high and low achievers.* Banasthali. Dr. C.B. Mathur.

8. Saxena, Radha Rani. *A study of the intellectual and non intellectual characteristics of slow learners.* Banasthali. Dr. K. Kumar.

Commerce

1. Harpreet Kaur. *Development dynamics, socio-economic conditions and work participation of women: A study of planning era in India.* Panjab. Dr. S.P. Singh and Shri A.C. Julka.

Home Science

1. Garg, Seema. *Developmental comparisons between girls residing with working and non working mothers.* Banasthali. Dr. K. Kumar.

2. Jain, Sashi. *Secular trend of growth in urban school girls.* Banasthali. Mrs. Maya Choudhary.

HUMANITIES

Fine Arts

Drawing & Painting

1. Bhardwaj, Babita. *Rajasthani chitron kee parampara mein Jaipur shaili ka vartman swaroop va unka adhunik kala per prabhav.* Banasthali. Prof. Deoki Nandan Sharma.

Language & Literature

English

1. Bali, Krishan Kumar. *Symbolism and myth in Raja Rao's fiction : A new interpretation.* Panjab. Dr. Lille Madanjit.

2. George, Raju. *Mythical elements in Raja Rao's novels.* Kerala. Dr. K. Radha.

3. Jaidev, Singh. *Art and commitment in the plays of Arnold Walker.* Panjab. Prof. M.L. Raina.

4. Joseph, Sujatha. *Indian critics on Shakespeare.* Kerala. Dr. K. Ayyappa Panicker.

5. Mahender Pal. *Quest for self identity in E.M. Forster.* Panjab. Dr. D.D. Jyoti.

6. Minnie, S. *Quest for emanoipation in the novels of Iris Murdoch.* Kerala. Dr. V. Rajakrishnan.

7. Rai Shiva, Sonia. *Philip Larkin and movement poetry : A study in comparison and contrast.* Panjab. Dr. M. Jaidka.

Sanskrit

1. Sharma, Asha. *Sant Ravidasa aur Sant Dadudayala ka darshanika dristi se tulanatmaka adhyayan.* Panjab. Dr. V.P. Upadhyaya.

2. Sharma, Dev Raj. *Philosophical and psychological study on Prabodhchandrodaya.* Panjab. Dr. Dharmanand Sharma.

3. Sushma Kumari. *The elements of love in gadya kavya Brhatiraya.* Panjab. Dr. Girish Chander Ojha.

4. Yadav, Umesh. *Yajush mantron mein adhyatha bhavna: Ek alochnatmak anusheelan.* Panjab. Prof. B.L. Bhartiya.

Punjabi

1. Arun Kumar. *Atharvin sadi tak de Punjabi Sufi kav vich bhagti da sankalp : Ek alochnatmak dahyayan.* Panjab. Dr. Jaspal Singh.

2. Baljit Kaur. *Giani Gurmukh Singh Musafir de sahit vich rashtri chetna.* Panjab. Dr. Kessar Singh Kessar.

3. Balwinder Kaur. *Sheikh Farid dee kavita de manavi sarokar.* Panjab. Prof. Attar Singh.

4. Chhinder Kaur. *Nanak Singh de navalan utte samajik rajnitik lahiran da prabhav.* Panjab. Prof. Kartar Singh Suri.

5. Dharam Singh. *Punjabi nikki kahani vich badal rahe samajik rishte ate naitik mul, 1960-85.* Panjab. Dr. Kessar Singh Kessar.

6. Dhosi, Naranjan Singh. *Ideological basis of Punjabi novel.* Panjab. Dr. Kessar Singh Kessar.

7. Gill, Parambir. *Punjabi novel vich Malve da bimb.* Panjab. Dr. Hardev Singh Sachar.

8. Harcharan Singh. *Nanak Singh de navalan da samaj shastri adhyayan.* Panjab. Dr. Jagtar Singh.

9. Hardiljit Singh. *Bharti darshan de prasang vich Guru Tegh Bahadur dee bani da adhyayan.* Panjab. Dr. Raghbir Singh Chand.

10. Harpal Singh. *A study of Rattan Singh Bhangu's pracheen panth prakash.* Panjab. Dr. Darshan Singh.

11. Jasbir Kaur. *Santokh Singh Dhir dee galp-chetna.* Panjab. Dr. Kessar Singh Kessar.

12. Jaspal Singh. *Galpkar Naurang Singh darishtikon te shilp vidhan.* Panjab. Dr. Hardev Singh Sachar.

13. Major Singh. *Punjabi novel vich algav bodh 1960-85.* Panjab. Dr. Kessar Singh Kessar.

14. Manjit Kaur. *Nanak Singh de navalan vich khalnayak da sankalp.* Panjab. Dr. Hardev Singh Sachar.

15. Rajwinder Kaur. *Guru Nanak bani vich gurmukh da sankalap.* Panjab. Dr. (Mrs) K.K. Kohli.

16. Sara, Gurmit Singh. *Aadhunik Punjabi kav vich nav rahasvadi pravritian.* Panjab. Dr. Achhar Singh Kahlon.

17. Sarabjit Kaur. *Nanak Singh de navalan da shilap vidhanik adhyayon.* Panjab. Prof. K.S. Suri.

18. Sat Pal Singh. *Punjabi rangmanch, itihasak te sidhantak paripekh : 1987 tak de natakan de sandarbh vich.* Panjab. Dr. Raghbir Singh.

19. Sodhi, Satbir. *Surinder Singh Narula de navalan de naik da sarup.* Panajab. Dr. Kessar Singh Kessar.

Hindi

1. Ashok Kumar. *Sathottar pramukh Hindi natakon mein astitva vadi chetana.* HP. Dr. O.P. Sarswat.

2. Bhardwaj, Shobha. *Bilaspur kshetra ke lokgeeton mein lokjeevan.* HP. Dr. Jagat Pal Sharma.

3. Chauhan, Shakuntla Devi. *Bharat Bhushan Aggarwal ka kavya : samvedna aur shilpa.* HP. Dr. (Mrs) Krishan Rama.

4. Dewan, Kiran Bala. *Ramcharit Manas mein yog tatha samadhi ka swaroop.* Panjab. Dr. Laxmi Narain.

5. Dwivedi, Satya Brat. *Hindi ke budhiparak shabdon ka vishleshnaratamak adhyayan.* Panjab. Prof. D.P. Maini.

6. Gautam, Sohan Lal. *Athven dashak kee pragtisheel kavita : Vyangya ke sandarbh mein.* HP. Dr. Lallan Rai.

7. Joshi, Harsh Wardhan. *Kyonthali ka bhasha vaigyanik adhyayan.* HP. Dr. Jagat Pal Sharma.

8. Khanna, Monika. *Manav mulyon ke sandarbh mein Jainender Kumar ke upanyason ka adhyayan.* Panjab. Prof. D.P. Maini.

9. Persaik, Nirmala. *Sathottary Hindi kavita ke sandarbh mein : Kedarnath Singh ka kavya.* HP. Dr. Krishan Kumar.

10. Rekha Rani. *Manav mulyon ke sandarbh mein Vijayender Snatak ke nibandh.* Panjab. D.P. Maini.

11. Rishi Ram. *Chhayavadottar nithakadharit Hindi prabandhkavion mein yuddha kee samasya.* Panjab. Dr. Lakshminarayan Sharma.

12. Sharma, Anita. *Nagriya bodh ke sandarbh mein Hindi kahani, 1960 se 1985 tak.* Panjab. Dr. Yash Gulati.

13. Sharma, Anu. *Ramayan evam Mahabharat se sambandh nai kavita ke prabandh kavyon mein mulyan chetna.* HP. Dr. O.P. Sarswat.

14. Sharma, Aruna. *Kedarnath Aggarwal ke kavya mein samajik aur rajnitik yatharth.* HP. Dr. (Mrs) Krishna Raina.

15. Sharma, Dev Kala. *Mahadevi Verma ke gadya mein samvedna evam shilpa.* HP. Dr. (Mrs) Krishna Raina.

16. Sharma, Hem Raj. *Himachal kee Hindi kavita kee samvedana.* HP. Dr. Krishan Kumar.

17. Sharma, Lalita. *Kamaleshwar ke katha sahitya mein yugchetana.* HP. Dr. (Mrs) Anjana Chauhan.

18. Sharma, Laxmi Ram. *Nirala kavya mein vyangya aur vidambna.* HP. Dr. Anil Rakesh.

19. Sohan Lal. *Agyeya kee kavia-chetna ka vikas kram aur uska saidhantik aadhar.* Panjab. Dr. L.N. Sharma.

20. Vidushi. *Nai kahani : Prateek sandarbh.* Panjab. Dr. Paresh.

Malayalam

1. Vasukuttan, K.A. *The treatment of modern scientific subjects in Malayalam.* Kerala.

History

1. Gupta, Roshan. *An historical approach to the myths and legends of the vedas.* Panjab. Dr. S.N. Chopra.

2. Gurdip Singh. *Administration of Sikh Gurudwara's and settlement of dispute : A study of Sikh gurdwara judicial system.* Panjab. Dr. Darshan Singh and Dr. Satpal Singh.

3. Khanna, Ashok Kumar. *Artisans in Ancient India : Vedic to pre-Gupta.* Panjab. Dr. S.N. Chopra.

4. Param Preet Kaur. *Socio-cultural life under the pratiharas period.* Panjab. Dr. Sudarshan Kumar.

5. Raghuvanshai, Jitender. *Gandhi and the Indian capitalists.* Panjab. Dr. S.L. Malhotra and Dr. Jai Narain.

6. Sharma, Urmila. *The agrarian system of Rajasthan, 1818-1947.* Banasthali. Dr. K.R Sharma.

7. Snehi, Swaran Singh. *Structure and organisation of the Namdhari movement, 1799-1969.* Panjab. Dr. C.L. Datta.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Psychology

1. Charmathy, P.J. *Psychological study of superstitiousness among college students.* Madras.

2. George, V.D. *Personality factors related to vocational choice.* Kerala. Dr. H. Sam Sananda Raj.

3. Hemalatha, Sheela. *Student scholastic performance and teacher job involvement, creativity and organisational climate.* Madras.

4. Mehta, Karuna. *Intelligence and information processing in children : A developmental study of perceptual processes.* Delhi.

5. Nath, Lalmohan. *Role of personality characteristics for success in medical training course.* Calcutta.

6. Pal, Tapasi. *A study on the psychological and bio-physical variables of the mentally retardates.* Calcutta.

7. Radhamani, S. *A study of certain personality and environmental factors in juvenile delinquency.* Madras.

8. Venkata Ananda Rao Thota. *Managerial role ambiguity differential influence of contextual determinants.* Andhra.

9. Vijayalakshmi, H. *Risk-taking behaviour, future time perspective and job performance of managerial personnel.* Madras.

Sociology

1. Chidambaralingam, A. *A socio ecological study of Salem City.* Madras.

2. Joseph, Joni C. *Mass communication and socio-economic development.* Kerala. Dr. P.K.B. Nayar.

3. Kapali, N.V.R. *A study of environmental perception of rural adults in Chingleput District of Tamil Nadu.* Madras.

4. Monga, Om Prakash. *Sociological aspects of child development in rural areas of District Sirmour, Himachal Pradesh.* Panjab.

5. Munirathnam Chetty, P. *Origin and growth of the Poligan system in Andhra Desa.* Madras

6. Nandanikar, Suhasini Balasaheb. *Muslim divorced women in Kolhapur District.* Shivaji. Dr. S.N. Pawar.

7. Ojagar Singh. *Changing status and role of university teachers.* Panjab.

8. Parthasarathi, Meduri Surya. *A study of a squatter settlement in an emerging city.* Andhra.

9. Sachithanandam, A.N. *Housing delivery system for the urban poor in Madras City.* Madras.

10. Sawardekar, Asha V. *Voluntaty social welfare organisations in Goa : A sociological study.* Shivaji. Dr. V.A. Sangave.

11. Shrivastava, R.K. *Social and economic consequences of the impact of Coal Mines on the Kawar Tribe in Madhya Pradesh.* Vikram. Dr. C.M. Abraham.

Social Anthropology

1. Mahadevan, Usha. *Determinants of population trends among the Tamil Brahmins of Tamil Nadu.* Delhi.

2. Sharma, Shashi Krishna. *Family structure and socialization process among the Jains in Madras City.* Madras.

Social Work

1. Vijayaram, G. *Slum improvement and community organisation in Madurai City with special reference to the impact of the levels of culture of povery.* Madras.

Political Science

1. Al-Eryani, Abdul Qawi. *Non-aligned movement and the Arab World.* Delhi.

2. Aranganayakan, C. *Education as an agency for social, economic change in Tamil Nadu.* Gauhati. Dr. V.V. Rao.

3. Azaravata, Ram Kanwar. *Bloc-rivalry in sports during post second world war period : A diplomatic study.* JNU. Dr. Pushpesh Pant.

4. Bhavani, S. *India's foreign policy in Southeast Asia, 1954-1964.* Madras.

5. Saikia, Hemo Prova. *The administration of local boards in Assam.* Gauhati. Dr. V.V. Rao.

6. Tewari, Rashmi. *Bharat-Soviet Sambandh, san 1971 ke uprant 1987 t[illegible]k.* Vikram. Dr. R.S. Gautam.

Economics

1. Brahmanandam, V. *Regional rural banks in Andhra Pradesh : The problem of viability.* Osmania.

2. Chandel, Balwant Singh. *Farm planning in agriculture under risk and uncertainty : A study of Kangra District, Himachal Pradesh.* HP Krishi. Dr. Parkash Mehta.

3. Gupta, M.C. *Profitability analysis of cement industry with special reference to cement units in Rajasthan.* Rajasthan. Dr. D.C. Jain.

4. Gupta, Rajendra. *Inflation in India, 1970-80.* Jammu. Dr. P.C. Jain.

5. Janakarajan, S. *Aspects of market inter-relationships in a changing agrarian economy : A case study from Tamil Nadu.* Madras.

6. Joshi, N.C. *Jila Sehkari Bhoomi Vikas Bank : Shajapur ka ek vishesh adhyayan.* Vikram. Dr. A.K. Bhattacharya.

7. Jugale, Vasant Bira. *Socio-economic and technological impact of cooperative credit on agriculture.* Shivaji. Dr. J.F. Patil.

8. Kamala Kumari, Nethala. *Trends in production and imports of edible oils of India.* Andhra.

9. Mathew, P.M. *Economics of crepe rubber industry in Kerala.* Calicut. Late Dr. K.M. Mathew.

10. Mishra, Kanak Manjari. *Economics of irrigation rates in Orissa.* Utkal.

11. Mishra, Surendranath. *Orissa State Electricity Board : An analysis of its working.* Utkal.

12. Mulani, Tayyab Kasim. *An economic study of famine effected villages of Sangola Taluka in Sholapur District in Maharashtra.* Shivaji. Dr. V.B. Ghuge.

13. Narayanasamy, V. *Patterns and factors in the growth of small manufacturing firms in Coimbatore City.* Madras.

14. Padmanabhan Nadar, K. *An economic analysis of marketing of cane-jaggery in North Arcot District of Tamil Nadu.* Madras.

15. Sah, Sita Ram. *Problems of rural development in Sikkim with special reference to agriculture from 1951-1981.* NBU.

16. Sameul Soundara, M. *Political economy of agrarian change in Nanchil Nadu, The late nineteenth century to 1939.* Madras.

17. Selvaraj, C. *An analysis of the flow of funds of the household sector in the Indian economy.* Madras.

18. Shaha, Rupa Shantilal. *A study of integrated rural development programme in Kolhapur District.* Shivaji. Dr. R. R. Doshi.

Law

1. Ajai Pratap Singh. *The role of public prosecutor in system of public prosecution in India with special reference to Union Territory of Delhi.* Delhi.

2. Thapalia, Shanta. *Termination of marital status and its legal consequences in Nepal.* Delhi.

Education

1. Balasankar, P. *A study of work experience programmes in schools of Kerala and formulating guidelines for strengthening the programme.* Kerala. Dr. K.R. Sivadasan.

2. Chandra Reddy, G. *The impact of formal education on agricultural income in A.P.* Osmania.

3. Chendurpandian, C. *Microteaching behaviour and teaching skill performance pattern in different school subjects.* Madras.

4. Chhina, Kewal Singh. *Organization and working of Sports Department in Panjab.* Panjab.

5. Dasgupta, Dipti. *Teaching school economics by the personalized system of instruction (PSI) : An experimental study.* Calcutta.

6. Hardayal Singh. *Assessment of motor abilities of Indian boys, age group 10-16 years.* Panjab.

7. Khan, Liaquat Ali Mohamood Ali. *A comparative study of the academic achievements of monolingual and bilingual students at S.S.C. level with special reference to their non-verbal intelligence and socio-economic status.* Marathwada. Dr. Ahmad Hussain.

8. Lenka, Bhagabat Prasad. *A critical estimate of the development of tribal education in the District of Mayurbhanj after independence.* Utkal.

9. Macfarland, Sister M. Claire. *A study of the effects of the effective classroom communication program on secondary school teacher.* Delhi.

10. Mohanty, Bhagyadhar. *A study of the pattern and problems of administration and supervision at primary level in Orissa.* Utkal.

11. Mohat, Susandhya. *An appraisal of teaching science in the high schools of Cuttak City.* Utkal.

12. Singh, Mithlesh. *Constraints affecting Indian women's participation in games and sports.* Banasthali, Dr. L.K. Dad.

13. Subba Rao, Kutra. *An investigation into the problems of tribal education at the primary level with special reference to the Visakhapatnam District.* Andhra.

14. Thilakam, G. *Constructing a teaching aptitude test.* Madras.

Commerce

1. Bhat, Ramesh Kumar. *The time series behaviour of corporate earnings : An empirical study.* Delhi.

2. Desgupta, Hira. *Work measurement for administrative personnel with special reference to India.* Delhi.

3. Ghosh, Tara Pada. *Accounting for inflation : A cash flow apostasy.* Burdwan. Prof. Amit Kumar Mallick.

4. Haldar, Pralaykanti. *Analysis for harmonizing between the two extreme views of a sheet of balances and going concern concept of balance sheet.* Calcutta.

5. Kolekar, Bajarang Dattatray. *A study of human resources development in selected public sector undertakings in Maharashtra and Goa.* Shivaji. Dr. P.S. Rao.

6. Ramachandran Nayak, M.A. *A study of the role of commercial banks in rural development with special reference to Trivandrum District in Kerala.* Calicut. Dr. T. Govindan Kutty Nair.

Home Science

1. Malkit Kaur. *Assessment of nutritional status of young Panjab women.* PAU.

2. Sathyavathy, L.S. *Motivating rural families towards improved fuel management practices.* Madras.

Business Management

1. Balbinder Singh. *A study of inventories : Its effects on the growth of core-sector industries under public sector since last two decades.* PAU.

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(i) A First Class Master's Degree or a Second Class Master's Degree with not less than 50% marks of an Indian University or an equivalent qualification of a foreign University in the subject concerned.

(ii) Either a research Degree of a Doctorate standard or published work of high standard.

(iii) About ten years experience of teaching at a University or College and experience of guiding research.

For Post 3

General : Master's Degree in any subject with First or Second Class of the University of Kerala or of any other University recognised by the University of Kerala.

Technical : Experience of at least 3 years in editing materials/supervising text-books printing and text-book preparation.

OR

Having authored and published own books of high standard.

For Posts 4, 5, 9, 10

(i) A First Class Master's Degree or a Second Class Master's Degree with not less than 50% marks of an Indian University or an equivalent qualification of a foreign University in the subject concerned.

(ii) Either a research Degree of a Doctorate standard or published works of high standard.

(iii) About five years experience of teaching at a University or a College and some experience of guiding research.

For Post 6

(i) A First Class Master's Degree or a Second Class Master's Degree with not less than 50% marks of an Indian University or an equivalent qualification of a foreign University in Islamic Studies or Islamic History.

(ii) Ph.D. Degree in the subject concerned.

(iii) Five years approved teaching experience at a University or in a College.

(iv) Research experience as evidenced by publications in approved journals during the preceding five years of the date of application.

For Post 7

Essential

(i) M.A. in English with at least 50% marks.

(ii) Ph.D Degree in English Language Teaching.

(iii) Five years experience in the production of E.L.T. Materials and/or designing E.S P. courses.

(iv) Five years experience of appropriate teaching.

Desirable

(i) Publication of Research papers relating to development of E.L.T. curricula.

(ii) Language Laboratory experience (minimum one year),

For Post 8

(i) A Master's Degree in Constitutional Law or Administrative Law from an Indian University or an equivalent qualification from a reputed foreign University in the above subjects.

(ii) Ph.D. Degree with Specialisation in any area of Constitutional Law or Administrative Law.

(iii) Five years teaching experience in LL M. classes in a University

Department of Law or in a Law College affiliated to the University.

(iv) Research Experience as evidenced by publication in approved journals.

For Post 11

(i) A First Class Master's Degree or a Second Class Master's Degree with not less than 50% marks of an Indian University in Journalism/Mass Communication / Communication or an equivalent qualification of a foreign University.

(ii) Either a research degree of Doctorate standard or published work of high standard in Journalism/Mass Communication/Communication.

(iii) About 5 years of experience of teaching in a College/University or professional experience (print media/radio, T.V. etc.) or Communication Research.

For Post 12

A First Class Master's Degree in Journalism / Mass Communication / Communication of an Indian University with not less than 50% marks or an equivalent qualification of a foreign University, and two years approved research or teachting experience in a College / University or professional experience.

For Post 13 to 17

A First Class Master's Degree of an Indian University or an equivalent qualification of a foreign University in the subject concerned and two years approved research or teaching experience in a College or University.

OR

A Second Class Master's Degree in the subject with not less than 50% marks and a Ph.D. Degree or published research work of high standard.

(Two years approved research or teaching experience in a College or University and Ph.D. Degree or published research work of high standard will be relaxed in the case of applicants for whom the post is reserved).

For Post 18

M.Sc. Degree (with not less than 60% marks) in Statistics/Mathematics/Physics with Specialisation in Electronics.

OR

B.E. (Electrical/Electronics) or equivalent Degree with not less than 60% marks.

Desirable : Experience in the field.

For Post 19

M.Sc. II Class in Physics or Mathematics or Statistics.

OR

B.E. or B.Sc. (Engg.) in Electrical or Electronic Engineering in II Class.

Experience : Experience in Computer Console Operation.

For Post 20

Essential : B.A./B.Sc. Degree with at least a Second Class.

Desirable . Field work experience in Social Surveys.

AGE (As on 1-1-1988)

(Usual relaxation for SC/ST/OBC candidates will be allowed. For the teaching posts, relaxation in upper age limit will be allowed in the case of persons already in the teaching service of the University).

For posts I, 2 : Not more than 50 years.

For post 3 : Not less than 40 years and not more than 50 years (relaxable in the case of university employees).

For posts 4 to 11 : Not more than 45 years.

For posts 12 to 17 : Not more than 40 years.

For posts 18 to 20 : Not more than 35 years (relaxable for post 20 by five years in the case of persons who have served in Projects/Schemes carried out in the University departments).

Note : In the case of reserved posts, if no candidates from the reserved community is found suitable, applicants from other reserved communities will be considered in accordance with the rules relating to communal rotation. In the absence of suitable candidates from any of the reserved communities, the vacancies will be treated as open, and filled up as Open Merit.

Application forms and details can be had on request from the Deputy Registrar (Administration), University of Kerala, Trivandrum (Pin : 695 034), on production of a challan receipt for Rs. 2/- (Rupees two only) remitted under Kerala University Fund Account in any branch of the State Bank of Travancore or a Crossed Indian Postal Order (in the case of persons residing outside the State) for the amount drawn in favour of the Finance Officer, University of Kerala, alongwith a self-addressed stamped envelope.

The last date for receipt of applications in the prescribed form is **20th April, 1988.**

Prof. S.K. Rajagopal
REGISTRAR

THE UNIVERSITY OF BURDWAN

RAJBATI : BURDWAN
WEST BENGAL

Advertisement No. 12/87-88

Dated : March 17, 1988.

Applications in the prescribed form are invited for the post of "Controller of Examinations" in the approved scale of pay of Rs. 1500-60-1800-100-2000-125/2-2500/-. The post carries dearness and other allowances, and pensionary benefits according to the Rules of the University.

Educational Qualifications & Experiences

(a) Essential ·

(i) Uniformly good academic record with a B+Master's Degree or its equivalent.

(ii) At least 15 years' experience in Academic Institutions like University or in an Institute of higher learning of which 5 years must be in high level administration in a University or in an Institute of Post-graduate Study.

ATTENTION ADVERTISERS

Advertisers may please note that the deadline for receipt of advertisements for ensuing Monday issue is Tuesday 4 P.M.

(iii) Age not less than 40 years. Relaxable in the case of exceptionally qualified candidates.

(b) Desirable

(i) A Doctorate Degree or published research work of merit;

or

(ii) High level administrative experience in a Government or Quasi-Government organisation or a good background in administration and management in senior position.

(iii) For the post it is essential to have experience in conducting examinations either in Institution of higher learning or in Service Commission.

The choice of the Selection Committee may not necessarily be confined to those who apply formally.

For application form and other information, please apply to the Registrar. The University of Burdwan, Rajbati, Burdwan, with a self-addressed stamped (Rs. 1/-) envelope (9" x 4").

Last date for submission of application with the requisite fee of Rs. 5/- is **9th April, 1988.**

P. Banerjee
REGISTRAR

CSIR CENTRE FOR BIOCHEMICALS

Advertisement No. 1/88

(Facility for import and distribution of fine chemicals)

Scientist C—1 post (Scale of Pay Rs. 3000-100-3500-125-4500)

Essential Qualifications — 1st class M. Sc. in Organic Chemistry/Biochemisty. Postgraduate qualification in Marketing and Sales Management/Project Management. Experience—minimum of five years experience in Marketing/Production of fine chemicals and biochemicals. Desirable—1. Knowledge of computer programming. 2. Familiarity with storage, stability and shelf life of biochemicals. 3. Knowledge of purity criteria of biochemicals.

Scientist B—5 posts (2 for ST and 1 for SC) (Scale of Pay Rs. 2200-75-2800-EB-100-4000). In the event of non-availability of SC/ST candidates the posts will be filled up by general category. Essential Qualifications—post 1-first class M.Sc. in Chemistry/Mathematics/Computer Science. Desirable—formal training with two years experience in programming for office administration/accounts/ sales / inventory control etc. Job Requirement—The candidate will be expected to help in implementing computerised methods for office administration, accounts, sales/inventory control and maintenance of records.

Posts 2-5—Essential Qualifications—Ist class M.Sc. degree/Ph.D. degree in biochemistry. Desirable-3 years of research experience after M.Sc. (1 year after Ph.D.) in preparative biochemistry/immunology animal tissue culture/lipids in a recognised laboratory. The candidate should be aware of modern advancements in biology and conversant with techniques used in biotechnology, especially those concerning their use in preparative biochemistry. Applicants for the post of Scientist B with exceptional merit, qualities of leadership as demonstrated through their past performance/publications may be considered for appointment at the level of Scientist C in the scale of 3000-100-3500-125-4500.

Jr. Technical Asstt.—3 posts (1 reserved for SC and 1 for ST)

INDIAN COUNCIL OF MEDICAL RESEARCH

The Council proposes to appoint three **Junior Stenographers** reserved for One SC and two ST categories for the Headquarters Office of the Council, New Delhi.

Last date for receipt of application is **14th April, 1988.**

Qualifications

(i) Matriculation/Higher Secondary or equivalent examination.

(ii) Speed of 80/100 w.p.m. in English Shorthand.

Desirable

At least one year experience in English Shorthand in a Govt./Semi-Govt. Organisation.

Age

Between 18 to 25 years (Relaxable upto 5 years)

Duration of Vacancies

Temporary but likely to continue.

Scale of Pay

Rs. 1200-30-1560-EB-40-2040

Application on plain paper giving full particulars should be sent to the Director-General, Indian Council of Medical Research, Ansari Nagar, New Delhi alongwith two copies of the latest passport size photograph and attested copies of educational qualification certificates and caste certificate. Candidates employed in Government/Semi Government Offices should submit their applications through proper channel. Applications received after the closing date will not be considered.

T.A. will be paid for appearing in the test and interview as per Govt. rules.

(Scale of Pay Rs. 1400-40-1800-EB-50-2300) (Posts 1 & 2)—Qualifications—B Sc. with Chemistry/Microbiology/Life Sciences. Job requirements--To help the scientists in preparation, storage, packing and analysis of enzymes, biochemicals and of slaughter house bye-products. To work in R & D as member of a team and undertake other connected work in the lab. under the instructions of senior scientists.

Post No. 3 (reserved for ST)—Qualifications : Degree in Science with formal training in electronic data processing. Job requirement—To help in feeding and retrieval of data using computers for administration, accounts and sales etc. If no ST candidate is found suitable the vacancy will be filled by general category.

Jr. Sales & Distribution Asstt.—1 post (reserved for SC candidate) (Scale of Pay Rs. 1400-40-1800-EB-50-2300).*

Qualifications & Experience—Degree in Science with 3 yrs. sales experience in an establishment dealing in scientific items. Preference will be given to candidates familiar with office procedure/electronic data processing. Exposure to modern methods of office management, ability to correspond independently and supervise the work of junior staff will be desirable.

Technician Grade VIII—1 post (reserved for SC) (Scale of pay Rs. 1400-40-1800-EB-50-2300).

Qualification : ITI Trade Certificate in mechanical Engineering with about 15 years experience in the line. Job requirements—Maintenance and repair of instruments, equipments, pumps, air-compressors, vaccum pumps, fabrication of parts etc. and other related duties as may be assigned from time to time.

The number of vacancies mentioned against each category is provisional and may vary at the time of selection. If more vacancies with identical job requirements become available, these can also be filled from among the candidates who might apply for the above posts.

Application forms can be obtained (free of cost) from the Administrative Officer, CSIR Centre for Bio-chemicals, C-11, Model Town III, Delhi-110009 upto 11.4.88. Separate application should be submitted for each post. The No. of advertisement, name of the post applied for and full address in block letters must be indicated at the top of the request form forms and sent together with a self addressed envelope of 22 cm. x 10 cm. size, affixed with stamps worth Rs. 0.90 p. for obtaining the application form.

Complete application in the prescribed form separately for each post, together with non-refundable application fee of Rs. 8/- (Rs. 2/- in the case of SC/ST) in the form of crossed IPO drawn in favour of Scientist-in-Charge, CSIR Centre for Biochemicals, Delhi, should reach this Office not later than 2-5-88. Applications must be supported by attested copies of certificates/testimonials relating to educational qualifications, date of birth, experience and original community certificate in respect of SC/ST candidates, from the appropriate authority.

A lower standard of suitability consistent with efficiency will be applied in respect of SC/ST candidates. Since it may not possible to call all the candidates for interview, the applications will be shortlisted for the purpose and the decision of a duly constituted screening committee will be final in this regard. Applicants called for interview will be paid single second class rail fare to and fro from the actual place of undertaking the journey or from the normal place of residence whichever is nearer to Delhi Railway Station, on the production of relevant documents of travel. Applications from employees working in Govt. Deptt., Public Sector Organisations and Govt. funded research agencies will be considered only if forwarded through proper channel and with a clear certificate that the applicant will be relieved within one month of receipt of the appointment order. Incomplete applications in any respect and those received after due date are liable to be rejected.

Canvassing in any form and/or bringing in any influence, political or otherwise, will be treated as a disqualification.

---

*If no SC candidate is found suitable the vacancy will be filled by general category.

With Best Compliments
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KUMAUN UNIVERSITY, NAINITAL

Advertisement No. Affl/1946. **Dated : 14.3.1988**

Applications for the following posts are invited by **30th April, 1988** on prescribed form obtainable from the Office of the Registrar, Kumaun University, Nainital-263 001 (U.P.) by sending self addressed 9" x 6" envelope and crossed postal order/Bank draft for Rs. 8/- payable to the Finance Officer, Kumaun University, Nainital. Money orders are not acceptable.

Name of Post	Pay Scale	No. of Post	Specialization
1. Reader Geology	1200 — 1900	1 Lv	Petrology
2. Lecturer Geology	700 — 1600	1 R	Palaeontology

Note : R, implies regular; Lv, implies leave vacancy.

Qualifications

1. **For the Post of Reader**
   - (i) Good academic record with a doctorate degree or equivalent published work and active engagement in research or innovation in teaching methods or production of teaching materials; **and**
   - (ii) Five years experience of teaching or research including at least three years as lecturer or in equivalent position.
2. **For the Post of Lecturer**
   - (a) A doctorate degree or research work of an equally high standard in relevant subject;
   - (b) Consistently good academic record with first or high second class master's degree or an equivalent degree of a foreign University in relevants subject.

Further details regarding qualifications, service terms and permissible relaxations in qualifications will be provided with application form. Preference will be given to SC/ST candidates if otherwise considered suitable by the Selection Committee. Application form will not be sent by post after 25 April, 1988 and application on plain papers and received after due date are not acceptable.

R.C. Pant
REGISTRAR

RANI DURGAVATI VISHWAVIDYALAYA JABALPUR

Advertisement

Applications are invited on the prescribed application forms (in eight copies) obtainable on payment of Rs. 15/- by Indian Postal Order from the undersigned for the following posts so as to reach the undersigned on or before 11th April, 1988 viz :

1. One Professor in Law, One Dean College Development Council and One Director Adult Education in the scale of pay of Rs. 1500-60-1800-100-2000-125/2-2500.
2. One Reader : for the department of History in the scale of pay of Rs. 1200-50-1300 60-1900.
3. One Head of Computer Centre (System Manager*)* and One System Engineer : in the scale of pay of Rs. 1100-1600.
4. Two Programmers : In the scale of pay of Rs. 700-1300.
5. Two Computer Operators *:* In the scale of pay of Rs. 425-700.
6. Two Key Punch Operators : In the scale of pay of Rs. 260-400.

The prescribed application forms (in eight copies) together with details of qualifications, specialization etc., can be obtained from the undersigned on payment of Rs. 15/- in person or by sending a crossed postal order of Rs. 15/- payable to the Registrar, Rani Durgavati Vishwavidyalaya, Jabalpur, the candidates who desire to get the application forms by registered post, should send an additional amount of Rs. 7/- by Postal Order for postal expenses.

The University reserves the right not to fill in any post or not to call candidates for interview.

REGISTRAR

CENTRAL MINING RESEARCH STATION, DHANBAD

(Council of Scientific & Industrial Research)

Advertisement No. 2/88

Vacancy : Scientist 'C' and Scientist 'B'.

No. of Post : 25 (Twenty five) likely to increase.

Reservation : 15% and 7-1/2% of Scientist 'B' posts are reserved for Scheduled Caste/Scheduled Tribes candidate respectively.

Pay Scale: Scientist 'C': Rs. 3000-100-3500-125-4500/- plus usual allowances as per Central Govt. rates. Total emoluments at the minimum of the Scale Rs. 3710/-.

Scientist 'B' : Rs. 2200-75-2800-EB-100-4000/- plus usual allowances as per Central Govt. rates. Total emoluments at the minimum of the Scale Rs. 2726/-.

Details may be seen in the Employment News dated 19.3.1988.

BANARAS HINDU UNIVERSITY

Advertisement No. 1/BKB 87-88

Applications are invited for the undermentioned posts. The benefit of Provident Fund/Pension, Dearness Allowance, House Rent Allowance and City Compensatory Allowances are admissible according to University rules.

The retirement age of the University employees is 60 years. The appointment will be made on one year probation on all permanent posts. Higher starting salary within the grade is admissible to specially qualified and experienced candidates.

Applications will be entertained on the prescribed form duly supported with a Bank Draft or Crossed Indian Postal Order of Rs 10/- (of Rs. 2.50 for the candidates belonging to scheduled caste/scheduled Tribes category) in favour of the Registrar, B.H.U. towards application fee. Application form along with detailed qualifications will be supplied on receipt of crossed I.P.O./Bank Draft of Rs. 2/- in favour of the Registrar, B.H.U. and self-addressed envelope of 23 cm x 10 cm. size carrying stamps of Rs. 1.80. Candidates called for interview, will be paid actual Railway fare by the Second class plus reservation charges for sleeper, if paid, and/or actual Bus fare from the present residence both-ways by the shortest route as per University rules. No other expenses will be paid.

Applications for each post be sent separately alongwith attested copies of certificates and marksheets in support of the qualifications and experience mentioned in the application and be addressed to the Registrar (Selection Committee Section). Banaras Hindu University, Varanasi 221005, INDIA.

Incomplete application in any respect will not be entertained for consideration. Those who are in service, should apply through proper channel. Money Order or Cheque will not be accepted towards application fee.

Reservation : A reservation of 22-1/2% (15% S.C. and 7½— S.T.) will be made in the category of non-teaching posts at entry level.

The last date for receipt of application in the office of the Registrar (Selection Committee Section) Banaras Hindu University, either by post or by hand will be **15th April, 1988.** Applications will be received by hand at the counter only upto 2.30 p.m. on each working day till the last date. No application shall be entertained after the last date from external, in service employees and the candidates residing abroad.

Note : 1. Number of vacancies are tentative and can vary according to needs.

2. Those who have already applied timely for the posts in response to Advt. No. 8/1984-85 and 6/1985-86, need not apply again. However, they may send 10 copies of their latest Bio-data for consideration.

BHARAT KALA BHAVAN

1. KEEPERS (Two)
   - (a) Archaeology — Sculptures, Terracotta, Numismatics & Epigraphy.
   - (b) Art — Paintings, Manuscripts, Textiles and Decorative Art.

   GRADE : Rs. 1100-1600 (likely to be revised).

2. DEPUTY KEEPERS (Two)
   - (a) Display
   - (b) Paintings

   GRADE : Rs. 700-1600 (likely to be revised).

3. ASSISTANT CHEMIST (One)

   GRADE : Rs. 700-1300 (likely to be revised).

CENTRAL INSTITUTE OF ENGLISH AND FOREIGN LANGUAGES

HYDERABAD - 500 007

Advertisement No. III/88

Applications on prescribed form are invited for the following posts in the Institute service so as to reach the undersigned on or before **2.5.1988**

Sl. No.	Name of the Post with Scale of Pay	Department	No. of Posts
1.	Professor/Senior Fellow (Rs. 4500-7300)	Materials Production	One
2.	-do-	Evaluation	One
3.	-do-	Correspondence Courses	One
4.	-do-	Regional Centre Shillong/Lucknow	One
5.	-do-	French	One
6.	-do-	Spanish	One
7.	Reader/Fellow (Rs. 3700-5700)	Methods	One
8.	-do-	Correspondence Courses	One
9.	-do-	Spanish	One
10.	Lecturer/Associate Fellow (Rs. 2200-4000)	Methods	One
11.	-do-	English Literature	One
12.	-do-	Regional Centre Lucknow	One
13.	Deputy Librarian (Rs. 1200-1900) (pre-revised)	Library	One
14.	Research Officer (Rs. 1200-1900) (pre-revised)	EMRC	One
15.	Asstt. Engineer (Rs. 700-1600) (pre-revised)	EMRC	One

Prescribed application forms and further details regarding qualifications etc., can be had from the Registrar, Central Institute of English and Foreign Languages, Hyderabad-7, by sending a postal order in favour of Registrar, CIEFL payable at Hyderabad-7 for Rs. 2/- (Ps. 50 for SC/ST candidates) with a self addressed envelope (10 x 20 cm.) duly stamped (Re. 1.80 Ps.) indicating the post which the applicant desires to apply for.

K. Jayashankar
REGISTRAR

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University News

MONDAY, APRIL 4, 1988 Rs. 1.50

Shri A.N. Banerji, Governor of Karnataka and Chancellor of the Mangalore University at the Sixth Annual Convocation of the Mangalore University. Seated on his right is Dr. M.S. Swaminathan, Director General, International Rice Research Institute, who delivered the Convocation Address.

CIRTES PUBLICATIONS

LIST OF AVAILABLE CAREER LITERATURE

Sl. No.	Name of publications	Price Rs. Ps.
01.	Facilities for Scheduled Castes and Scheduled Tribes	2.00
02.	Admission to M.B.B.S. at a Glance	1.25
03.	Self-Employment in Small Scale Industries	1.25
04.	Careers for Agricultural Graduates and All Scientists	2.05
05.	Directory of Career Publications and Occupational Research	—
06.	Careers in Communication	2.30
07.	U.P.S.C. Competitive Examinations	1.20
08.	Admission to Engineering (1st Degree Courses)	2.60
09.	Careers in Printing	2.80
10.	Advertising for a Career	2.65
11.	Careers in Professional Management	1.55
12.	Careers in Teaching	2.25
13.	Careers in Banking Industry	2.75
14.	Careers in an Electric Supply Industry	1.90
15.	Careers in Railway Industry	1.60
16.	Careers in Mass Communications	—
17.	Directory of Careers	—
18.	Handbook on Training Facilities in Delhi	30.00
19.	Promotion of Entrepreneurship among Science and technology Personnel	3.55
20.	Admission to Para-Medical Courses	3.55
21.	Careers in Hoteliering	2.15
*22.	Careers in Electronics	—
23.	Career Opportunities for the youth	1.90
*24.	Careers in Financial Institutions	—
	JOB SEEKERS GUIDE SERIES	
01.	Craftsman as a Career	0.10
02.	Craftsman as a Career 2	0.10
03.	Craftsman as a Career 3	—
04.	Systems Analyst	—
05.	Physiotherapist	—
06.	You are 10 + What do you like to be?	0.10
*07.	Careers in Pharmaceutical Marketing — The Medical Representative	—

* Publications under print.

NOTE: Copies of the publications can be purchased only from the authorised book sellers, local Employment Exchanges or from the Controller of Publications, Old Secretariat, Civil Lines, Delhi-110054.

CENTRAL INSTITUTE FOR RESEARCH & TRAINING IN EMPLOYMENT SERVICE (CIRTES),
MINISTRY OF LABOUR, GOVERNMENT OF INDIA, PUSA, NEW DELHI.

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C. F. T. R. I.,

UNIVERSITY NEWS

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Editor :
SUTINDER SINGH

MANGALORE UNIVERSITY

A PROFILE

For the outstation, particularly the international traveller, Mangalore University presents a beguiling combination of the old and the new; a breath-taking panorama of scenic beauty, and interesting academic experimentation, somewhat off the beaten track.

The old and the new are juxtaposed, because Mangalore University is one of newer universities in Karnataka and the country (its Postgraduate Centre at Mangala Gangothri having come up in the year 1968, and its Charter as a full fledged University having been obtained in the year 1980). Nonetheless, it contains within its jurisdiction, some of the oldest and most prestigious institutions involved in higher education. One of these is undoubtedly St. Aloysius College, founded a century ago, its architecture reminescent of ivy-covered Oxford Colleges. Another is St. Agnes College, the first Women's College under private mangement in India. The Manipal educational complex, with its Kasturba Medical College at Manipal started in the year 1953, is the product of the vision, perseverance and dynamism of Dr. T. Madhava Anantha Pai, and today it is rated as one of the best Medical Colleges in the country and is recognised by the Medical Council of India (MCI) and General Medical Council of Great Britain, and the Surathkal Regional Engineering College, on the other hand, represent the University's thrust into the future, dealing as they do with professional disciplines at an advanced level including computers.

Few universities can boast of a more exquisite physical terrain. The University covers two districts : the coastal strip of Dakshina Kannada and the hilly district of Kodagu. The coastal plain itself, bounded by golden beaches; criss crossed by major rivers, and undulating into a chain of rolling hills, offers kaleidoscopic visual delights to the traveller. Mangala Gangothri, the site of the Postgraduate Campus, is an impressive expanse of wind swept hills, with a panoramic view of the rolling ocean. Kodagu has both the clime, and the charm of an unspoilt hill station.

Both sections also offer a piquant amalgam of cultures and an interesting ethnic mix, the people of Kodagu, being among the martial races of India, from among whom came India's most decorated soldiers : Field Marshall Cariappa, and General Thimmayya. Dakshina Kannada, the larger segment, vies with Kerala as the origin of the one of the world's oldest Christian communities in India. It has a sizeable Muslim presence. Furthermore, it is also regarded as the Benares of the South, with the eight Maths of Udipi drawing Hindus from every part of the country to Temple square, and the shrine of the Goddess Mookambika, in Kollur. Jainism, also flourished here, its ancient monuments still extant in the Temple of a thousand Pillars, Moodabidri, and the Gomateshwara of Karkal. Living Jainism survives in Dharmasthala, where the "Heggade", is something of a Sovereign Pontiff to his followers.

Academically, the University covers the total spectrum of students' needs in higher education, offering graduate and postgraduate courses in

Arts, Science and Commerce; Graduate-level studies in professional courses like Medicine, Engineering, Law, Business Management, Education; Postgraduate Courses in these professional disciplines are also offered. For the most part, graduate studies are carried out through affiliated colleges, and (except in some of the Technical disciplines) directly by the University at Postgraduate and doctoral level in the other major branches. At the undergraduate level the University has more than fifty colleges which are affiliated to it. To maintain a calibre of educational level, standards are strictly enforced by making colleges apply freshly for affiliation, every year. A check is thus available, on the maintenance, improvement and development of institutions which seek affiliation. An effort is now being made to diversify the courses and combinations available to students at graduate level. Some of the new courses are, a subsidiary in Journalism, a degree in Physical Education and Catering.

At the Postgraduate level, Mangalore University is one of the few in the South, to frame rules and regulations with an eye on the regional requirements and blending them harmoniously with a more broader spectrum of the national advancement. Hence the University offers a syllabi which is abreast with the national and international research, progress, debates and developments, being in part with the best and most progressive universities in the country and abroad. Many a subject have been structured to suit the needs of the hinterland. The Postgraduate Departments of Marine Geology and Biosciences are executing the prestigious Western Ghat Projects. Various other departments are working in close association with highly advanced national and international institutes and laboratories, to name a few, the CSIR, ASTRA, IISc. BARC, CFTRI, Institute of Oceanography, ICHR and others.

The University's Postgraduate Campus at Mangala Gangothri has fifteen departments catering to Postgraduate Studies and Research, covering Literature, Social Sciences, Commeree, Management and various branches of sciences.

Where the more older and established universities in the State are still hesitant in introducing the M.Phil. Course, the Mangalore University has taken a bold step forward in this matter by introducing the M Phil. programme from the academic year 1986-87 which is completely a research oriented programme, with emphasis on enhancing the students' aptitude and intention towards independent research.

As all the Postgraduate Departments of the University are also research departments, much emphasis is laid on research leading to Doctoral degree and the University has already awarded 20 Ph. D. degrees from the time of its inception.

The Mangalore University has not spared any effort in stimulating all possible areas which could be of help in the progress and development of the University and in persuance of academic excellence. Thus the University has succeded in approaching and getting positive support from various institutions, Trusts and Banks in the establishment of endowment Chairs in pertinent area studies. As a result the Mangalore University, presently has as many as twelve endowment Chairs, covering areas like Rural Development, Yoga, Ayurveda and Sanskrit, Management Courses, Rural Banking, A Chair in Christianity in Bank Management, in Thulu, in Konkani, Higher Studies in Cooperative Management, in Environmental Studies and a Chair in Kodava. The University is embarking upon more ambitious programmes in introducing some more new Chairs which would study some of the most important issues of our society and region like a Chair in Youth Affairs, and a Chair in Environment and Ecology. And shortly a Chair in Women and Child Development is also expected. A novel aspect of many of these Chairs is that they are first of their kind in the State.

The University's medical, technical and Postgraduate Courses have more than five hundred students from abroad as well, who are involved in degree, Postgraduate Studies and Research.

Policy making in the University vests in its three main representational bodies.—the Academic Council, Senate, Syndicate, day-to-day running and implementation are carried out by the three main officers of the University: the Vice-Chancellor, Registrarand Controller of Examinations.

Professor B. Sheik Ali was the first Vice-Chancellor of the University who held the office during 1980-1985. The present Vice-Chancellor, Professor K.M. Safeeulla, has elaborate plans to expand on the foundations laid by his predecessor. He has conceived the idea of a Regional Institute, which will specialise in analysis, and popular public projection, of area studies. He has also empanelled a number of distinguished people to serve as advisers. These include such luminaries as Dr. Raja Ramanna, Professor Chandrashekhar, Dr. Amla, Dr. Parpia, Dr. C.N.R. Rao, and Dr. D.P. Pattanayak.

Accolades have come to the University in the acceptance by such people, of a advisory role in the shaping of the University. The UGC recognition and assistance to the University, which has been announced, will be of a great advantage in development of research and collaboration with national and international research centres. This would also help in a major developmental grant for research into "pigeon milk", and the participation of scholars from Mangalore University in seminars and exchange programmes abroad.

Such a promising beginning augurs well for a trail blazing future.

St. Aloysius College

Mangalore University
A Pictorial View

New Science Faculty Building

College of Hotel and Restaurant Management, Manipal

Mangalore University
A Pictorial View

VAIKUNTA BALIGA COLLEGE OF LAW
(A UNIT OF Dr T.M.A PAI FOUNDATION)

Vaikunta Baliga College of Law, Manipal

THE SAGA OF MANIPAL

Ramdas M. Pai*

Not long ago, just when the country was recovering from the clutches of the British rule and the world war ravages, in the Southern part of the country a sleepy little village was on the threshold of an unthinkable development under the vision of Dr. T.M.A. Pai, a country doctor and a banker. Manipal as it is now known, not just in India but throughout the world, has attained the status of India's answer to Harvard or Yale.

Of course, it was not easy for one man supported not by the government or by any quasi-government or missionery agency but by his own kith and kin and family friends to raise such a mammoth empire of education and health based institutions on a small rock hillock of which features were most discouraging for any kind of growth let alone groom doctors and engineers. But today over 5,800 doctors and 5,064 engineers throughout the world owe their livelihood to this educational complex and its founder Dr. T.M.A. Pai.

Manipal shelters under its sprawling five kilometre square plateau, a number of educational, health and engineering based institutions. A medical college named after the life partner of Mahatma Gandhi-Kasturba, and attached to it are a College of Pharmacy, College of Dental Sciences, School of Nursing, Artificial Limb Centre and Kasturba Hospital.

What started as a saga of education and health turned into an epic of social service as the Manipal miracle started covering downhill into Udupi, Karkala, Moodabidri, Kundapur, Mulki and Sringeri. On every major highway reaching Manipal from mofussil places there arose a college, either sponsored by the Academy of General Education or directly under its administration.

The Academy of General Education which today stands as a harbinger of education and health services in the district is the supreme governing body of over 40 educational institutions having a student strength of over 22,000 in South Kanara disttict. The Academy established in 1942 by Dr. T.M A. Pai has today acquired the status and facilities worth to be present in a full fledged University town; in fact an expert committee from the University Grants Commission (UGC) has already examined the facilities available in the educational complex and placed before the UGC a report reportedly pressing the Commission and the Union Government to grant a 'deemed to be University' status to the Manipal—Udupi educational complex.

The 40 institutions include 8 high schools, 6 first grade colleges, 12 primay schools, 10 professional colleges including two Kasturba Medical Colleges, one each at Manipal and Mangalore, one College of Pharmacy, two Colleges of Dental Surgery, Manipal Institute of Technology, a College of Education, Vaikunta Baliga College of Law, T.A. Pai Management Institute and country's first ever College of Hotel and Restaurant Management, and Dr. T.M.A. Pai Polytechnic.

Apart from these colleges the Manipal Group of Institutions also has School of Music and Fine Arts, School of Nursing, School of Crafts and an Institute of Languages.

As a unique feature of Manipal group of Institutions there is an Educational Extension Centre specially meant for upgrading the teaching techniques of the teachers in the various schools, colleges, and institutes of the Academy. In addition, there is a Department of Medical Education which continuously finds out innovations in teaching, evaluation and communication skills of the faculty.

The first to appear among the Academy's fleet of colleges was the Mahatma Gandhi Memorial College (M.G.M.) in Udupi which is generally referred to as the 'starship' of Dr. T.M.A. Pai's fleet. It came as early as 1949. Currently it offers bachelors degrees in Arts, Commerce and Science with an enrolment rate of over 2200. The M.G.M. College also has an Institute for folk and Performing Arts attached to it, which trains youngsters in yakshagana and other forms of folk arts.

Next to be established in 1953 was Kasturba Medical College, Manipal and followed by Kasturba Medical College, Mangalore, 60 Kms. away from Manipal in 1955. Between them, these medical Colleges admit 1,400 students with an annual intake of 220 students each. Over 125 medical graduates and an equal number of postgraduates emerge from these colleges annually. Over 50% intake of the medical colleges at Manipal and Mangalore is comprised of foreign students from United States, United Kingdom, Gulf countries, Malaysia, Indonesia, Sri Lanka, Philippines, Singapore and a few African countries.

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The year 1957 witnessed the induction of two more professional colleges viz., Manipal Institute of Technology (MIT) and Udupi Law College at Udupi now renamed as Vaikunta Baliga College of Law.

MIT has till now turned over nearly 5,064 engineers. With an annual intake of 665 students, MIT has an output of 335 engineering graduates every year. Currently, MIT has 8 branches namely : Civil, Mechanical, Chemical, Industrial Production, Computer Science, Electrical, Electronics and Communication Engineering, and Architecture. The institute during the next few years plans to introduce printing technology as a full fledged degree course.

The Vaikunta Baliga College of Law runs two academic circuits, namely : 3 years and 5 years course. The annual intake is 250 students and the output currently stands at 40 students per annum.

The year 1965 was a golden era at Manipal, a dream-come-true-year for Dr. T.M.A. Pai as three professional colleges were pressed into service. They are : College of Dental Surgery (CODS), College of Pharmacy (COPS) and Dr. T.M.A. Pai College of Education, Udupi. The former two colleges were built on the Manipal plateau and the College of Education in Udupi adjacent to M.G.M. College.

College of Dental Surgery offers both Bachelor's and Master's degree in Dental Surgery. The college attracts an independent faculty, over 435 students at an an annual intake of 100 undergraduates and 18 postgraduates. The annual output of the college is 45 students. The College of Dental Surgery is acclaimed to be one of the best equipped colleges in the entire South East Asia and draws 40% of its students from oriental countries.

The College of Pharmacy, today stands as one of the best institutions for pharmacy in the sub-continent and has an intake of 270 students with an output of 80 students each for B. Pharma and M. Pharma courses.

As a staunch educationist himself, Dr. T.M.A. Pai wanted the faculty which trains the students to be perfectly in tune with the teaching tools. Dr. Pai tried and successfully launched the College of Education to realise his dreams of a harmonious taacher training institute. The College of Education either has not let down Dr. Pai's aspirations. The college since its inception has grown from its own virtues and today it draws students from the South Indian States such as Tamil Nadu, Kerala, Andhra Pradesh besides Karnataka and Maharashtra. It has an intake of 125 students and an output of 95 B.Ed. graduates yearly.

In the year 1984 the Manipal hierarchy of administration felt the need for a Management Institute in the region. Through setting up the T.A. Pai Management Institute, the void was filled.

Yet another feather for the Academy arrived in shape of the country's first college of Hotel and Restaurant Management in 1986. This college is housed under the Valley View International Health Club at Manipal. The Welcome Group of ITC Management has vowed to develop this college into one of the best of its kind in the world as they took over the overall management of the Hotel and the Restaurant Management Institute recently. It would certainly be an easy task for them as the college already has faculty and equipement of international standards.

Apart from these institutions, the Academy also runs a numder of nursery, primary, middle and high schools which total upto 19 in all.

A Polytechnic, School of Nursing, School of Crafts School of Music and Fine Arts are flourishing under the Academy, set up by the great visionary.

In 1987, a school of languages—Manipal Institute of Languages came into existence. This school still in its infancy has already started courses in German, French, Effective English and Russian. The Institute also inducted recently teacher education (languages), language instruction, and research and development training into its programme. In future, the Institute plans to introduce courses in Journalism, Platform Speech, Public Relations and Mass Communication.

The Academy of General Education has laid out elaborate plans to establish and devlelop a Residential School. The blue-prints of "Sharada Residential School" have been drawn and plots have been laid out for this prestigeous school. The school when completed will have an intake of 30 students in the beginning and will follow the CBSC Syllabus pattern. The seats will be alloted on the basis of an entrance test. Besides the routine subjects of Mathematics, Science, Social Studies, Social Work and Physical Education, the School plans to introduce Art Work, Computer Science, Moral and Spiritual education.

Apart from the educational facilities each of the institutions have their own libraries, playgrounds and athletic tracks. The Manipal plateau has two swimming pools, one fully equipped gymnassium and over 20 acres of playground facilities.

The Kasturba Medical College has been the first in the country to open a separate department for Radiobiology as a subject. It was inaugurated by Dr. Raja Ramanna, the then Chairman, Atomic Energy Commission.

With all these features in this Mandal Panchayat one wonders if there existed a 'metropolis mandal panchayat' in India.

HIGHER EDUCATION IN INDIA
The Shifting Perspectives-III

K.K. Balachander*

III

Human Values and Higher Education

There has been so much talk recently about the an all-pervasive crisis of values in colleges/universities. Any meaningful effort at remedying the present situation presumes a correct diagnosis of the problem.

Higher education at one time was not an instrument of achieving 'material' affluence; 'non-material' values which even though are hard to measure, were considered no less important than material values. Higher educational institutions were established with the above end in view and were nursed well by dedicated voluntary bodies and some individuals. They were not to be just professional institutions to fit people for some special mode of gaining a livelihood. When the age of specialisation was forced on the society, greater stress was however laid on the material aspects of higher education than on 'humanism' and 'values' which dominated this field earlier.

The important question is : should we look at higher education solely from the manpower angle, or, in other words, should it be just job-oriented ? Looking at the higher educational scene today, it appears that it is the need for educated **manpower** rather than the concern for **manhood** that has gained more and more prominence. After economic thought brought into the focus the **investment** aspect of education, higher education has come to be considered as a 'knowledge/skill industry', just as "if producing educated people is the same as producing steel or fertiliser" (Philip Coombs). A depersonalised way of imparting knowledge cannot be deemed as education in its true sense. "Surely education should be judged by its contribution to the quality of civilization and to the happiness and self-fulfilment of human beings" (McConnell). Or, as Carter rightly put it, "it is poor, silly doctrine which looks at it (education) only as an ancillary in the production of material wealth". Besides the acquisition of knowledge/skill for jobs, there are other equally important objectives such as cultivation of the mind, character-moulding, social awareness, dignity of work, development of new ideas and insights, self-discipline and self-confidence, a happy confluence between rights/privileges and duties/responsibilities, fostering a national outlook, etc. All these aspects are not given due importance in the existing higher educational curricula or have in fact been sadly neglected. That may be the reason why we have failed in our attempts to give higher education a meaningful direction.

The craze for quick results, irrespective of merit, has coloured the outlook of majority of students—and parents too—when planning higher education for their wards. The youth is getting enamoured of the more trashy Western values, life styles and 'quick-buck' culture. They are not interested in raising themselves above selfish interests. The higher education system itself is not equipping the students to comprehend the limits of economic possibilities. The country cannot, even by 2000 A.D., hope for very high levels of material affluence (as in the West) for the mass of the people. If the educated elites start demanding too much out of the pool of (scarce) national resources for themselves, it could generate attitudes based on unlimited material possibilities. **The process of want-generation should not exceed the rate of material advancement.** If it does, either only a small section can reach high levels of affluence (the rest being in relative penury), or the system prepares itself for periodic chaos. In Western societies, higher education is considered as widening the range of **choice** and extending its frontiers. In India, on the contrary, it has to make the youth aware of the 'limits of choice'. If such limits are not to come from the coercive role of the State, they have to come from the thinking process. Unfortunately, an awareness of this problem has not been built into the Indian higher educational system. Instead, there is a blind imitation among the youth of Western ideas and prescriptions based on crass consumerist, materialistic and competitive outlook of life which are unsuited to this country. Huxley was perhaps right in stating that the modern education system in many countries turns out 'modern intelligent barbarians'. An education which concentrates more on manpower **material** would naturally look at man as essentially a labouring animal. Today,

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majority of the students come out of higher educational institutions with a degree but untouched by education in the true sense as is evidenced by their attitudes and life-styles.

All this has led to a lopsided development of the minds of the students. A general atmosphere of cynicism prevails among the youth of the country. There is acute degeneration of value-base, and an all pervasive insensitivity of the educated to social responsibilities, thus alienating them from the mainstream of Indian life. On what constitutes true education, Gandhiji had this to say :

> "A man is neither mere intellect, nor the gross animal body, nor the heart or soul alone. A proper and harmonious combination of all the three is required for the making of the whole man, and this constitutes the true essence of education".

This was what was emphasised in institutions of higher learning in the ancient period. It is a pity that we have no 20th century Nalanda or Takshashila to boast of.

Irrelevant Curricula

This brings us to the question of the existing curricula and the methodology of instruction in Indian Universities. The huge investment in higher education can be fruitful, or give proper returns in socio-economic terms or in terms of human resources development, only if the curricula are relevant to the needs and aspirations of the community and responsive to real-life situations and environment. Unfortunately, the existing curricula do not satisfy these criteria. It still continues to be mostly irrelevant outmoded and outdated; many institutions are reluctant to change them. The country has reached a stage when some fresh thinking is needed in this regard.

The curricula as they exist in many universities today, are (i) mind-boggling and designed in such a way as to make the students learn by rote rather than building personality traits, (ii) far too elaborate and cumbersome, (iii) putting maximum premium on book-knowledge and information/facts of rather questionable relevance, (iv) examination-oriented, and (v) discouraging self-study habits. In this context, what Swami Vivekananda had observed is relevant :

> "Education is not the amount of information that is put into your brain and runs riot there, undigested all your life. We must have life-building, man-making, character-making assimilation of ideas...... If education is identical with information, the libraries would be the great sages in the world and encyclopaedias the Rishis......We want that education by which character is formed, strength of mind is increased, and intellect is expanded, **and by which one can stand on his own feet."**

The curricula at present followed in higher educational institutions do not bring about the desired fundamental changes in the thinking and attitude of our youth; in fact they discourage this by putting greater emphasis on passive assimilation of factual knowledge/information with unquestioning conformity. The examinations test only the memory of the students or to the ability to reproduce what is taught in the class or what the teacher expects him to answer. This is unfortunate particularly when there isa knowledge explosion in practically all field.

Some important questions that arise with regard to formulation of the curricula are : (i) what sort of a society the youth should be groomed and educated for ? (ii) Should it be a 'consumer-oriented' society? (iii) Should the system have a different set of values, one that does not see **acquisition** as the be-all and end-all, but sets store by social, cultural and ethical values? In the broadest sense, we must ask ourselves whether the higher education system should serve only economic objectives or whether it should serve other objectives as well—social, cultural, political and ethical. We would certainly want it to be the latter. For this reason, it seems right to seek gains from expenditure on higher education in the totality of these effects, and not just vocational/career success. Such an education would prove to be really productive rater than be an unproductive consumer of scarce national resources.

Without an elaborate critique of the **content** of ou higher educational process, no meaningful highe educational reform is possible. Though the need fo socially relevant courses is being repeatedly emphasised in many Government documents/reports, pretty little has so far been achieved in this direction. We hav yet to work out a teaching-learning process which besides taking into account job-orientation, also pro vides strong motivation, a spirit of enquiry or intellec tual curiosity and wholesome development of the individual. What Jawaharlal Nehru had observed i this context is interesting :

> "Education has two aspects : the **cultural** aspec which makes a person grow, and the **productiv**

aspect which makes a person do things. Both are essential. Everybody should be a producer as well as a good citizen......If the universities do not teach some kind of basic wisdom, if they think in terms of producing people with degrees who want certain jobs, then the universities may have, perhaps, solved to a very minor extent the problem of unemployment or provided some technical help or other, but they will not have produced men who can understand or solve the problems of today."

Teachers' Role—The Neglected Aspect

For a rapidly growing higher education system, the need for additional teachers is large, and they have to come from among the products of the system itself. Unfortunately, only a smaller proportion of the talented persons become available to branch into teaching. There are not enough teachers to meet the urgent pressing demands. The teaching profession is fast becoming the last resort of the unemployed, or they join the profession simply because at that time they do not find a suitable opening elsewhere; as soon as they find one, they quit. There has been a steady diminution of quality of teachers during the last few years.

With unlimited class-strength, the teacher-student-subject interaction has become very weak. **The spirit of sacrifice on the part of the teacher, that of service on the part of the taught and that of cooperation and duty on the part of the parents/community/Government have all receded to the background over the years.** Perhaps the teachers have come to believe that nothing worth-while could possibly be achieved by just talk (and chalk)! They desperately try to spend an hour in the class. Moreover, the inevitable repetitiveness of a teacher's work blunts the student's mind, and the latter finds it difficult to keep his mind's edge sharp enough in order to use it for creative work. Under the existing conventional instructional method—mainly lectures and class notes—the students do not respond. As Paulo Freire remarks, the system suffers from "narration sickness," There is very little planned communication or dialogue or interaction between the speaker and the listener. It is becoming a one-way experience. The students are looked upon as "containers" or "receptacles" to be filled—an object that cannot do anything out of its own resources but needs stimulation, guidance and control. Freire calls this as the "banking concept of education ". Knowledge is deposited into the students in the same way as one deposits one's capital into a bank. In due course when capital gets ripened, one expects enough interest to buy something else, i.e. material privileges, status career, prestige, influence, etc. Also if what is presented does not interest the students, or if its relevance is doubtful, they will naturally switch off their mind and thus learning will get thwarted. The fault may not be only on the part of the teachers, but with the curricula. Besides, the number of trainees has now become too large. Unlimited class-strength means limited strength to the teacher to survey the entire class from time to time and see that everyone is attended to properly. The teacher remains a helpless spectator to the systematic carnage of standards.

How can we expect a teacher to give quality education under the above circumstances ? He finds it difficult to do justice to the profession he serves—which was onee considered as the **noblest** one and enjoyed the highest esteem from the community. Do we consider it the same way now ? Even then, some teachers like to work against all odds. As the Government of India document **Challenge of Education** had rightly stated, whatever merit there is in the present system flows essentially from the commitment, hard work and innovative capacity of a sizeable number of teachers who have become deeply involved in the welfare of their pupils **despite heartaches and poor rewards**. Only when adequate salary and congenial/conducive working conditions are assured, one can demand that the teachers must give some dedication and creativeness to their task, instead of becoming a kind of impersonal conveyor of a narrow stream of knowledge, **and communicating in the time at his disposal only what he has to communicate—and ignoring everything else.**

Funding and Autonomy

During the British period, higher educational institutions had sought funds from a variety of sources—student-fees, donations, gifts, etc.—which met about 60 per cent of the recurring expenditure of these institutions; the rest was covered by Government grants. The financial support extended then by students/parents, donors and philanthropic organisations enabled universities/colleges to retain their autonomy to a great extent. In fact one of the distinguishing features at that time was the remarkable freedom that our colleges and universities enjoyed from Government control.

Since Independence, there has been a stready decline in contributions by way of fees and private munificence; at the same time, the cost of higher education has escalated. The major responsibility of financing higher education, as a consequence, has fallen on the public exchequer. Instead of a mixed public-private system, as originally planned, almost a totally 'publicly-financed' system has emerged with universities/

colleges obtaining about 80 per cent of their funds from the State and little support from private sources. The percentage share of Government contribution towards expenditure has doubled over the last last four decades. It is therefore not surprising–though undesirable—that the higher educational institutions are subjected to more Government surveillance of finances and programmes than they would like to be. To surrender independence because of financial need is rarely a happy experience.

At the same time, the Government is becoming extremely niggardly in their approach to the basic needs of the expanding system. Government officials decide how much money should be appropriated to universities/colleges and how the latter should allocate these funds. In short, there appears to be a total lack of appreciation of the real role of higher education and this has an adverse effect not only on the implementation of academic programmes but also on the quality of the programmes themselves. The financial administration in the institution is being gradually geared towards the impersonal and highly unimaginative practices and requirements of State Governments forgetting the fact that this affects the hopes and aspirations (and careers) of thousands of students as well as over two lakh teachers. The controlling influence of state authority is felt in the smallest administrative/financial details, involving teaching/non-teaching staff, infrastructural facilities, premises and organization of various academic programmes such as Seminars, Workshops, teacher training programmes, etc. All efforts to innovate, to be distinctive, quality-wise, are inhibited. The University Acts passed in some States bear testimony to this tendency. Most of the (state) uniuersities hardly have the freedom to function without being fettered by bureaucratic (and political) pressures. The present scenario is far from assuring. With non-educationists—who do not understand academic needs–having remote control over the system, the administration in universities is in real doldrums. The Vice-Chancellors today are required to spend more time on managing than leading. They have to contend with competing interests inside as well as outside. Many educationists and well wishers of the system are viewing this crisis with considerable dismay, and speak nostalgically of the situation of yesteryears when funds were adequate, institutional autonomy was assured, academic values were respected, and the academic profession itself enjoyed a prestige. If the institutions, as well as the faculty, had made sustained efforts to mobilise non-governmental private resources, it would have helped them not only to scale down the overdependence on Government for funds but also to preserve their autonomy. The deep-rooted financial crisis that is fast engulfing the higher education sector, it appears, has evoked only resigned indifference from faculty and students alike. Even the very few teachers who are broadly aware of the situation, have failed to notice its seriousness. Perhaps they have got used to such a condition ! While complaining about Government control and interference, **they seldom ask the question as to how such a situation has arisen.** The teachers could do much more than they are at present doing. Politicians and bureaucrats cannot be expected to respect the autonomy of the university system if the academics themselves allow it to be debased.

IV

Conclusions

The preceding diagnostic review of some of the crucial issues facing the higher education system in India leads one to conclude that vast is the gap and challenging is the task ahead. The problems are more or less the same as the system faced during the long period of colonial rule. Most of the distortions that began with Macaulay still persist. The tendency has been to maintain the same design with slight, superficial modifications and inconsequential reorganisation. It is not going in for change or innovativeness. Particularly, the existing course-curricula make one either a jobseeker or a frustrated rebel. They are not based on the realities of the country. There has been little concerted effort to give higher education a meaningful direction or develop any **Excellence** therein. Recently our Prime Minister had remarked that "most of our universities have degenerated into mere factories churning out degrees." According to him, the present higher education system stifled excellence, and mediocrity is the order of the day. He called upon educational institutions in the country to do some introspection and to assess their contribution from the points of view of both excellence and utility.

Excellence implies more than competence; **it means a striving for highest standards in all walks of life.** As John Gardner says : "Many more can achieve it (excellence) than now do. Many, many more can try to achieve it than now do. **And the society is bettered not only by those who achieve it but by those who are trying.**" This may require a new way of thinking about excellence in higher education. If higher education has to become "dynamic as never before", or if we have to ensure that "those at the top of the pyramid are among the **Best** in the world," high priority should be given to changing the very ethos of the system so that hard and dedicated work and pursuit of excellence could become a way of life among institutions. teachers and students.

The maladies of the higher education system have been investigated by a multitude of commissions, committees, task forces and working groups set up by the Government, both during the British period and after Independence. Most of the recommendations made by these bodies were either abandoned or watered down. In fact there has been no other field in India than that of education that has been much talked about and so little done to change the prevailing situation. The shortcomings have become more glaring as the system has grown at a faster rate.

The final irony of the situation is that with limited financial and material resources available now, the system has got itself engulfed into a serious crisis. Finance is the most crucial factor in the development of higher education. Many good reforms and programmes suggested by various committees/commissions, and the University Grants Commission, have floundered due to lack of finance. "Neither quantitative nor qualitative improvement", as the Challenge of Education document states, "can be effected without provision of resources. In fact the resource implications of qualitative changes in education would be far greater than that of mere quantitative expansion because in such an initiative additional per unit requirement for quality upgradation will be needed for new as well as existing institutions". This makes inevitable a reappraisal of the policy of the present pattern of financing higher education, and developing some alternative strategies. It is, however, clear that an increasing support from private non-governmental sources will have to be sought in the years to come if the system has to survive. **The overdependence on the Government is neither feasible nor desirable.**

The Challenge Ahead

The need of the hour apparently is a comprehensive strategy that can tackle simultaneously all the problems bedevilling the system. The crisis is too deep and cannot be handled through a series of **ad hoc** measures, or a 'fire-fighting' approach. It demands long term, permanent measures **with a definite direction**. The recent Government of India document **Challenge of Education—A Policy Perspective** (1985) and the AIU Recommendations on New Education Policy (April 1985) have high-lighted the maladies of the prevailing system, identified the thrust areas of action and spelt out the directions of change. Later a **National Policy on Education** (1986) has also been adopted by the Government of India. The document has recognised the need for an all round improvement of the system and has assured that "urgent steps will be taken to protect it from degradation." The enormous exercise involved in the finalisation of the New Policy (and the subsequent **Programme of Action** Document) would have been worthwhile if it brings about in actuality the desired results. In India, the chasm between policy formulation and implementation has been too wide, especially in the field of education. The New Policy has however aroused some optimism among those who had closed their doors to hopes of resurrection. With some serious efforts things can be reasonably set right. We have to make good fast the years that have been lost.

There has also to be a deep sense of involvement and commitment on the part of teachers, students, parents and educational administrators. It is high time that the academic community, especially, rose to the challenge, ceased to live in ivory towers and took up the task earnestly. If we have to succeed in this, the teaching profession has to be made again a respected (and economically rewarding) one. Before expecting the flowers (students) to blossom and spread fragrance, the plant (teacher) has to be nursed well. It is the society that stands to gain by this. ☐

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YOUTH HOSTELS MOVEMENT

Y. K. Ahluwalia*

The Youth Hostels Movement had its birth in Germany where Mr. Richard Schirrmann (1874-1961) a school teacher in Gelsen Kirchen in the heart of Ruhr District began with his first step in 1901 to take his class out for excursions into the Westphalian hill countryside which still lay only a few miles from the town, to study geography, history and nature with a hope to try out new teaching methods. He took his young students out on weekend trails.

It was during one such trail on 26th August, 1909 when faced with acute accommodation problem in the Brol Valley that he first conceived the idea of a youth hostel and this marked the birth of the Youth Hostels Movement in Germany and throughout the world. Mr. Richard Schirrmann is the founding father of youth hostels movement in the world and 26th August is celebrated as Founder's Day by Youth Hostels Associations all over the world.

First Youth Hostel

The first youth hostel was started by Mr. Richard Schirrmann, the pioneer of the movement in 1912 at Altena Castle on the river Rhine in Germany. In 1919 Youth Hostels Association was established in Germany and the movement spread rapidly in Europe and elsewhere in the globe and hundreds of youth hostels came into being. Before Richard passed away on 14 December, 1961, the youth hostels movement had already made rapid strides and a few thousand youth hostels had begun operating all over the world.

The best and most fascinating feature of youth hostels was their variety and touch of local heritage as all kinds of buildings were utilised for this purpose from castles, palaces and manor houses to simple farm houses and cottages but everywhere there was striking cleanliness and harmonious atmosphere. Some old ruins and archaeological places also served as Youth Hostels as we once had Bholi Bhatiyari Ka Mahel—a monument on the Ridge—which served s a youth hostel in Delhi for several years.

"Wandering One Gathers Honey"

The Youth Hostels are built to generate youth travel both from within the country and abroad. They are meant for providing cheap hostelling facilities to young people when they go on educational tours, excursions and visits to historical and cultural centres, and are intended to foster feeling of national integration and better understanding through such cultural contacts. "Wandering one gethers Honey"—Youth Hostels should provide a nucleus for youth activities in the region, helping youth to imbibe a certain sense of discipline and fellow feeling which comes from a sharing of common duties and cultural get-togethers in the evenings while staying in these hostels. It is imperative that the character of Youth Hostels should be maintained in conformity with international practices and the amenities provided should conform to international standards.

Hostelling offers a wholesome rejuvenating opportunity for the fulfilment of the natural desire to go around and see the people and places both at home and abroad. Youth hostelling is, therefore, a way of inexpensive travelling. It may be by way of biking, trekking, hiking or canoeing.

Youth Hostels Association of India (YHAI)

The youth hostel idea in India started in a humble way in Mysore where Prof. Eagleton, a professor of English at the University formed a committee in 1949 with some eminent men to organise Youth Hoslel Movement. It made some impact in University circles.

A grant of Rs. 500/- was given by the University and 3 years later it received an Associate Membership of International Youth Hostel Federation (IYHF) and the National Secretary was awarded the first UNESCO travel grant from IYHF for study of youth hostel movement in Europe. In the meantime the organisation of the Youth Hostels and the Regional Committees which were necessary for a Youth Hostel Movement was initiated. On the arrival of Mr. Catchpool in India, he made a study of the whole situation and came to the conclusion that the headquarters of the organisation should be moved to Delhi as he visualised great possibilities for the movement in India. Mr. Catchpool, a friend and well wisher of the movement, toured many places, discussed his plans and ideas with people in public life, educationists' planners and businessmen and finally drew up his plans. He secured a most beautiful and picturesque spot in

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keeping with the Youth Hostel idea among the old ruins in Mehrauli near the Qutab Minar which was a joy to visit at any time. Shri Mahathera Dhammavira an old Cambodian monk, had set up a small Buddhist temple there with the help of the villagers living around with whom he had made friends with his nature cure medicines. This whole place had at one time, more than three hundred years ago, been a Garden house of a nobleman in the court of the Mughal Emperor, Shah Jehan. There were three buildings separated from each other within a very large compound enclosed by surrounding high walls with two very big gateways on either side with watch towers on the top. The Buddhist monk who appreciated and admired the ideals of Youth Hostel Movement, when approached by Mr. Catchpool, accepted readily the proposal for a Youth Hostel there and handed over the central building for the purpose. Thus was created the Youth Hostel (YH) centre in Delhi comprising a Youth Hostel, the office of the YHAI and also a dwelling place for the National Secretary and his family who had come over all the way from Mysore. With appreciable economy and forethought the whole thing was managed as the question of funds was a challenging one, though Mr. Catchpool had approached the House of Tatas, the Ministry of Education and others and some funds had come, they were not enough.

Meanwhile more restoration work for the building was necessary. The word had gone around and it became a common practice in those days for students from St. Stephen's College, Miranda House, Nursing College and others to have a camp there on week-ends and join in the repair work of the Youth Hostel. Members of the Service Civil International and other social workers and Mrs. Chester Bowles who was the American Ambassador's wife at that time, also used to join. The whole idea of building up something for a cause was attractive and the place was so beautiful.

In the midst of a cosmopolitan gathering of citizens of Delhi assembled at the new YH centre in Mehrauli in May 1955, Shri G.V. Mavalankar, the renowned Speaker of Parliament those days declared this new Youth Hostel centre open. Sadly enough, it also turned out to be a farewell party for Mr. Catchpool who was to leave the country soon after.

Before he left, however, a small Committee was formed with Mrs. Shanti Kabir as the Chairperson, the Late Shri G.D. Sondhi as the Treasurer, Shri S.S. Khera, I.C.S. and Prof. M. Mujeeb as members and Shri R.G. Padki as the National Secretary.

The latter half of 1956 saw the planning for the foundation of the movement in India on a national scale for which work had already begun. The first national Y.H. Conference was held in Delhi that year. A number of active and interested delegates came from the Adhoc Committees that had been formed in some of the States such as Gujarat, Maharashtra, Rajasthan, Andhra Pradesh, Mysore, West Bengal and Delhi.

The discussions were lively and practical and most of them were enthused with the idea of exploring the possibilities of a membership drive by getting the educational institutions in their respective areas affiliated to the movement and also try to get some schools and colleges offer some accommodation in their buildings during the holidays for youth hostellers. These were the genesis of Accommodation Hostels with a Warden and other necessary amenities of a Youth Hostel. Thereafter the organisation of an annual all India Conference in different states became a regular feature contributing substantially to the strengthening and expansion of the Movement.

The publication of the "Youth Hostellers" the Quarterly Journal (now monthly) and mouthpiece of YHAI was also started the same year and is continuing to serve the movement till today.

The crowning piece of the year was when the then Prime Minister, Pt. Jawaharlal Nehru on being invited to be the Chief Patron of the Movement in India, greeted it in the following terms : "I welcome the growth of the Youth Hostels Movement in India; apart from the obvious advantages of travel in various parts of the country, there is a basic significance in young men and women doing so in the impressionable years of their lives.

We have to do this not as tourists looking at strange objects but rather as children of India discovering our own country with reverence and with the desire to participate ourselves in the fashioning of a new India."

These were touching and inspiring words from a great leader for the Youth of India to be treasured in letters of gold for all time.

In 1959 was held the 2nd Asian Youth Hostels Conference in Delhi which was inaugurated by Dr. S. Radhakrishnan, the then Vice-President of India. It was a most successful conference attended by the President of the International Youth Hostels Federation and a large number of important delegates from the Asian countries.

YHAI'S First Youth Hostel

The plan for building some of the youth hostels by the YHAI was also taken up. The first youth hostel that was built with our own resources of funds and labour was a small one in the Shimla Hills near Kasauli which could accommodated 35 persons. It has a beautiful location commanding a view of many of the mountain tops and other neighbouring hill stations like Shimla, Tara Devi, Dagshai Dharampur and Kasauli. The plot of land had been donated by a friend of the movement and an International camp of volunteers helped to construct the foundations. Gopalpur on Sea, Ganjam, Orissa was the next one built by the YHAI in 1961. The land was donated by the Orissa Govt. and here also an International camp of volunteers worked for a month to lay the foundations.

In the initial stages, the building of these two hostels situated at the two opposite ends of India, by the youth hostellers themselves helped to create a lot of public opinion in favour of the Movement.

Building the Youth Hostel Complex in Chanakyapuri in Delhi was no doubt, a long and arduous process, but it also had its thrills the way it brought both national and international friendship, support and cooperation into focus which is the keynote of the message of the Youth Hostels Movement.

The Present Scheme

The construction of Youth Hostels (YH) by the Government is conceived as a joint venture between the central and the state governments. While the Central Government bears the cost of construction of the Youth Hostel, the State Governments, provide developed piece of land free of cost. Standard design has been prepared for being adopted for construction of Youth Hostel at all places with minor modifications to suit the topographical requirements of the respective areas. The Warden & Asst. Warden of Youth Hostels will be appointed by Deptt. of Youth Affairs & Sports (YA & S) and their salaries paid by Central Government.

The subject of Youth Hostels is being dealt with by Deptt. of Youth Affairs & Sports, Government of India, Ministry of Human Resource Development, New Delhi. A Central Policy Committee (CPC) has been constituted with the Minister for Youth Affairs, Sports, Women and Child Development as its Chairperson with Secretary (YA & S), Financial Adviser (YA & S), Director General Tourism, Chairman, Youth Hostels Association of India and other representatives of State governments, Youth Hostels Wardens and a few other organisations. The purpose of setting up this apex body on Youth Hostels is :

(i) to lay down broad outlines regarding youth travel from one part of the country to another;

(ii) to suggest ways and means for implementation of youth travel programme. package tours, etc., in coordination with the Ministry of Railways, State Governments, Youth Hostels Association of India, and similar other organisations;

(iii) to suggest measures for augmenting/organising accommodation and ancilliary facilities; and

(iv) to lay down policy/plans for management of youth hostels constructed by the Central Government. The Committee would also assess and review periodically the management activities of the youth hostels constructed by the Central Government.

Youth Hostels are already functioning at Amritsar, Aurangabad, Bhopal, Dalhousie. Darjeeling, Gandhinagar, Hyderabad, Jaipur, Madras, Mysore, Nainital, Panaji, Panchkula, Pondicherry, Patni Top, Port Blair, Puri, Trivandrum, Shillong, Agra, Imphal, Namchi (Sikkim).

The Youth Hostel at Dimapur has been completed and is expected to be commissioned soon.

Construction of 60 new Youth Hostels has been planned by the end of Seventh Five Year Plan at Nagarjunasagar, Ranchi, Bodhgaya, Shimla, Chandigarh, Srinagar, Gulmarg, Bangalore, Khajuraho, Bombay, Gopalpur-on-sea, Bikaner, Jaisalmer, Chittorgarh, Mussoorie, Uttarkashi, Barkul (Chilka Lake), Cherrapunji, Tura, Vishakhapatnam, Vijayawada, Tawang, Junagarh, Kulu, Pahalgam, Kishtwar, Mangalore, Gulbarga, Jammu, Merara, Balur-Halebid, Mannar, Indore, Pachmahri, Pune, Bhubaneshwar, Udaipur, Gangtok, Kodaikanal, Ooty, Varanasi, Ranikhet, Lucknow, Howrah/Calcutta, Tezpur, Delhi, Calangute, Beach (goa), Seputara, Dharamsala, Kergil, Verkalai, Ukhrul, Sibsagar, Kolasib/Lunglei, Kohima, Kailasher, Rubha, Jodhpur, Maghar.

A dozen youth hostels all over the country are at various stages of completion.

Membership

There are presently nearly 40,000 members of YHAI all over the country. The minimum age for membership is 10 years but there is no upper age limit. The annual membership fee is only Rs. 15/- for those above 18 years and only Rs. 10/- for students and those below 18 years. Fee for Life Membership is Rs. 150/-. The Membership Card issued by YHAI is valid internationally for stay in Youth Hostels all over the world.

Youth Activity Programmes

YHAI is an all India organisation with its National Office at 5, Nyaya Marg, Chanakyapuri, New Delhi-110021. There are state branches and regional units in nearly all the States.

The member States in India are engaged in their own way to make inexpensive travelling a habit, to promote understanding and friendship, to help the youth to acquire greater knowledge, care and love for the countryside through activities, such as trekking, cycle trails, scrambles, rambles, nature clubs, explorers' clubs and Millions of Trees Clubs.

National Trekking Programme

The YHAI has successfully carried out exploratory ventures in regions which are far-flung, such as Kishtwar in Northern Himalayas, Namchi in North-Eastern Himalayas, Goa in Western Ghats, Kulu Manali in Himachal Pradesh etc. Great success has also been achieved in organising International Himalayan Trekking Programme which has attracted participation and received commendation from a number of countries.

National Cycle Rally & Integration Camp

YHAI in collaboration with the Deptt. of Youth Affairs & Sports, Govt. of India every year holds National Cycle Rally and Integration Camps in Delhi in which hundreds of young boys and girls cycle from their homes in various parts of the country and converge at the camp established in Delhi for this purpose. Their week-long stay in Delhi together in the same place gives them a unique opportunity of interaction and brings them closer socially and culturally thereby helping the national integration effort.

Republic Day Camp

This year a special YHAI Republic Day Camp was organised in Delhi from 23–28 January, 1988 in collaboration with the Deptt. of Youth Affairs & Sports, in which 650 young boys and girls from border areas of the country participated. They were shown glimpses of progress made by the country in different fields. They watched the Republic Day Parade on 26th January from a special enclosure. Besides, they visited [illegible] of cultural heritage in Delhi. The programme helped a good bringing them closer to national mainstream.

All this is done by dedicated voluntary sider, the movement a great and strong vehicle ing together their feelings and aspirations wh them closer on a common platform.

In spite of tremendous efforts being made the movement, it is felt that in a vast cou India with a population of more than 80 mostly residing in villages, nothing significant achieved. The movement has not yet rea rural areas. There is a dire necessity of brid gap between the rural and the urban youth.

Ordinarily, in India, people undertake tra as a social necessity or to visit places on p This assures the belief that youth hostelling to connect the rural and the urban youth th accepted principles of hiking, biking, etc. For this aim sufficient financial resources are requi is not possible to get through YH organisatio

In other developing countries, things are Their modes of travel are also in the format The youth from different areas feel the di coming closer to each other. It is our earne that if more youth hostels are established, individual membership and the overnigh hostels will get a fillip which in turn will it movement.

The developing countries have vast lands tify themselves with their customs and syst study of their history if done judiciously, ment of a detective story as most of them with past heritage of cultural values.

The idea of Richard Schirrmann invol boys and girls and also the grown-ups, in scrambles and rambles in the countryside a around historical monuments and wilderne view to study nature and make it easy fo understand their historical background, st their interest in new knowledge. Discussio finds of the past and visits to places of varied are of great educative value and positively students and non-students to a growing und of how the past helps in shaping the present their knowledge thus acquired to what they in their own lives.

It is, therefore, desirable that to stre movement and achieve its goal, the YHAI for :

(a) mobilisation of resources at all leve
(b) building up a cadre of dedicated vo
(c) programme formulation and imple giving due regard to culture and he
(d) membership enrolment drives, and
(e) building of more Youth Hostels.

Charter for Nature

Dr. M. S. Swaminathan, Director General, International ice Research Institute and President, International Union for the onservation of Nature and Natural Resources, suggested drawing p a charter for nature that should indicate how to conserve, anage and utilise the soil, water, flora, fauna, minerals and atmos- here in an ecologically sustainable manner. Dr. Swaminathan as delivering the Convocation Address at the 6th Annual Convo- ation of the Mangalore University. He said, "It will not be nough if the University with the help of all concerned including illage schools prepares a Charter for Nature for this area. The harter will have to be converted into practical implementation uidelines. For this purpose it will be necessary to organize in illages and towns People's Associations for Sustainable Develop- nent."...Excerpts.

Convocation

Ours is a land of the youth. e than half of our population is w the age of 21. Even the popu- n of children in the age group 14, now exceeds 230 million. y of them live in our villages re they are confronted on the hand with problems relating to h care, education and even h drinking water, and on the r, with inadequate oppor- es for skilled employment.

he famine of jobs and thereby urchasing power has now be- e the most serious cause of nutrition. Without access to nced diet and clean drinking r a child will not have the ortunity for the full expression s innate genetic potential for sical and mental development. General President of the Indian nce Congress Prof. C.N.R. Rao lamented at the falling stan- ds in our Universities. He stressed that the quality of research and teaching in our universities is far from satisfactory. Such sentiments have been expressed before by several eminent political leaders, administrators and scientists. Their prescription has always been further investment in university infrastructure. While the malady is articulated clearly, the remedy prescribed applied has unfortunately not been effective. Why ?

I feel that the neglect of education at the pre-school, primary and secondary school levels is the primary cause for the decline in standards in our universities. I am an agriculturist. If I sow rice seeds in a field, watch them sprout and then neglect them until harvest time, my yield will be low irrespective of whatever chemicals and other stimulants I may apply at a later stage in the growth of the plant. Similarly, if we neglect the education of the child until the time when the youth enters the university, we will not be able to derive full benefit from our investment on university education. There is no use in blaming the students or teachers. The fault lies in our unidimensional approach to a multi-dimensional problem.

All those taking to teaching as a career will have to bear this in mind. We should work for achieving **nutrition security for our children** and for developing a **learning environment** which stimulates learning by questioning as well as by doing.

Rabindranath Tagore wrote in *Gitanjali :*

> *"A candle which is not lit cannot light others;*
>
> *A teacher who is also not learning cannot teach others".*

It is important for teachers to consider their profession as a life-long learning and sharing experience.

While we struggle to improve the learning environment for all children, irrespective of their social and economic status at birth, what can universities do to help the students who are already in the universities ?

I would like to offer two suggestions for achieving a learning revolution at the level of University education.

First, we should end as soon as possible the prevailing mis-match between admission policies and teaching methodology. Our college admission policies have rightly incorporated equity considerations and socially relevant criteria while assessing the suitability of candidates for admission. The training technology is however oriented towards youth from the middle classes and socially advantaged sections of the community. First-generation learners will remain greatly handicapped under such a system. Fortunately, the course-credit and trimester systems of organizing the teaching programmes provide excellent opportunities to help a student to both overcome the handicaps arising from inadequacies in his or her earlier school education and achieve future aspirations. We have not carefully assessed and utilised the power of this system for achieving a proper match between admission policies and educational techniques.

A second suggestion, I would like to make is a properly planned increase in the "**learning by doing**" component of university education. We know from real life experience that many illiterate persons are able to master sophisticated new skills with ease and competence provided they get opportunities to learn them through work experience. Each university can take up projects relevant to their educational thrusts and ecological setting where the faculty and students can jointly learn.

Mangalore University, for example, can work on a **Charter for Nature for the South Kanara and Kodagu Districts**". Such a charter should indicate how to conserve, manage and utilize the soil, water, flora, fauna, minerals and atmosphere of this region in an ecologically sustainable manner. The sustainable and equitable use of environmental systems involves considerable inter-disciplinary research and cooperation. Sustainable development is the 20th century passport to enduring happiness. It is a passport which should be issued to everyone in the South Kanara and Kodagu districts by this university. If similar charters for Nature are prepared for all parts of the country, we would have laid the foundation for a national ecological security system.

Jawaharlal Nehru, whose birth centenary falls next year once remarked "We are a poor people inhabiting a rich country". Why are we finding it difficult to convert our natural endowments into wealth meaningful to our people on a sustainable basis? The answer lies in our inability to convert know-how into do-how. This is where the Mangalore University can show the way.

It will not be enough if the University with the help of all concerned including village schools prepares a Charter for Nature for this area. The Charter will have to be converted into practical implementation guidelines. For this purpose it will be necessary to

MANGALORE UNIVERSITY
Highlights

1. **Offers M.Phil programme in all the 13 postgraduate departments and has introduced Postgraduate Diploma in Business Management, Production Management, Computer Applications and Certificate programme in Kannada Language.**
2. **Proposes to introduce Masters Degree Programmes in Applied Botany, Applied Zoology, Material Science and Mass Communication and Journalism from the academic year 1988-89.**
3. **Has introduced optional subjects like Electronics, Computer Science, Hotel Management, Nursing, Physical Education, Journalism etc. at the undergraduate level to strengthen the vocational element in the programmes.**
4. **Endowment Chairs have been instituted in the subjects of Rural Development, Ayurveda, Yoga, Bank Management, Small Business Management, Rural Banking, Ecology and Environment, Christianity, Tulu, and Konkani.**
5. **One seat in each of the Masters Degree Programme is reserved for outstanding NCC cadets.**
6. **Organises programmes in Community Health, Social Forestry, Leadership Training, Literacy, etc. under the NSS programme.**
7. **A Rs. 1 crore Sports Complex comprising an Indoor Stadium, Swimming Pool, Sports Fields etc. is planned.**
8. **Enjoys active collaboration with premier institutions such as Indian Institute of Science, Central Plantation Crop Research Institute, Central Food Technological Research Institute, Central Institute of Indian Languages, National Institute of Oceanography, Indian Space Research Organization and National Aeronautical Laboratory, etc.**

organize in villages and towns **People's Associations for Sustainable Development.**

Former alumni of this University could become catalysts in organizing such Associations, which could discuss and develop methods of using the land, water, flora, fauna, atmosphere and other resources of the area in a manner that both nutrition security and livelihood security for the poor can be achieved. There is a great opportunity for reversing the drain of brains and money from the village to the city. I hope the Mangalore University can take up the twin tasks of preparing a charter of Nature and for developing a mechanism for implementing the charter as its tribute to Jawaharlal Nehru during his birth centenary

Although such a project will bring the university and the people into a symbiotic partnership, the project approach I have suggested is essentially a pedagogic method for overcoming the academic shortcomings experienced by students coming from socially and economically handicapped sections of our community.

Thus, two-pronged strategy consisting of an effective use of the course-credit system of curriculum organization and involvement of students and staff in intellectually stimulating and economically and environmentally rewarding projects, will render continued criticism of declining standards in universities unnecessary and uncalled for.

Mangalore University is fortunately situated in an area rich in natural beauty, cultural heritage and enterpreneurial genius. It can become a pace setter in our country in showing how a university can in addition to combining excellence and relevance in its academic work, also focus as much attention on people as on technology, and as much on the long term as on the short term. This University can then teach the rest of the country on how to integrate environmental protection and economic growth in a mutually reinforcing manner. The Mangalore University can thus pave the way for National University level Programme of Research, Training and Action on Sustainable Development.

We Congratulate......

1. **Dr. A.P. Mitra, Director-General, Council of Scientific and Industrial Research who has been elected Fellow of the Royal Society of U.K. in recognition of his contribution in the area of radio science, especially in ionospheric physics.**

2. **Dr. (Mrs) Kanta K. Sharma, Professor and Head of the Department of Foods and Nutrition of the Home Science College of the Punjab Agricultural University who has been elected Fellow of the International College of Nutrition (ICN) in recognition of her significant contribution for the advancement of nutrition.**

JUST RELEASED
Studies in Distance Education

Besides being a very strong tool for meeting the current and future demands on the systems of education the world over, Distance Education is emerging as a discipline in its own right. These two claims are amply vouched for by this volume, which should be of as much interest to academics as to non-academics.

For the academics, the themes presented herein unfold the crucial issues, concerns, lines of thought and approaches to problems under the various aspects of Distance Education—theory, methodology and techniques, economics and research. For the non-academics, the volume outlines the utility and potential of the distance mode of education in terms of its pervasive influence on democratic revolutions by democratizing education with the help of available communication technologies.

Besides, the volume reflects the state of art as it obtains in India today. Thus, it should be of interest to readers outside India also.

Deluxe edition	**Rs. 60/-**
Students edition	**Rs. 20/-**

For Details Contact

Under Secretary (Publications)
ASSOCIATION OF INDIAN UNIVERSITIES
AIU House, 16 Kotla Marg, New Delhi-110002
Telephones : 3310059, 3313390, 3312305, 3312429

CALENDAR OF EVENTS

Proposed Dates of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
May 9-June 4, 1988	Summer Course in Analysis and Probability	Topics to be covered are Probability Theory and Stochastic Processes, Fourier Analysis & Functional Analysis.	Indian Statistical Institute, Bangalore Centre.	T.S.S.R.K. Rao, In-charge, Summer School 1988, Stat-Math. Division, Indian Statistical Institute, R.V. College (P.O.) Bangalore 560 059
May 18-20, 1988	Conference on Recent Advances in Mathematical Techniques and Applications	Topics proposed to be discussed include Mathematical Physics, Mathematical Methods, Biofluid Dynamics, Chaos, Stability and Turbulence.	Dr. Y.S. Parmar Institute of Mathematical Sciences, Shimla.	Dr. J.R. Gupta, Organising Secretary, Dr. Y.S. Parmar Institute of Mathematical Sciences, Hainault, Shimla-171002
June 27-July 8, 1988	Short-term Intensive Training Programme on Abstracting & Indexing	To train the participants in the application of abstracting and Indexing methods and construction of an indexing language (Thesaurus).	National Institute of Small Industry Extension Training, Hyderabad.	Mrs. K. Subhashini, Course Director, NISIET, Yousufguda, Hyderabad-500045
July, 12-14 1988	**International Symposium on Recent Advances in Male Reproduction**	**The Symposium will focus on Molecular Biology of Inhibin, Androgen Binding, Protein Regulation of Fertility, Peptides in Testis Function and Steroidogenesis in Testis.**	**University of Hyderabad in collaboration with the Indian Society of Andrology.**	**Prof. P.R.K. Reddy, School of Life Sciences, University of Hyderabad, Hyderabad 500134**
September 26-28 1988	**International Conference on Welding Technology in Developing Countries**	**To provide an opportunity to scientists and technologists from developing and advanced countries to share their experiences in the area of Welding Technology.**	**University of Roorkee, Roorkee.**	**Prof. P.C. Gupta, Organising Secretary, International Conference on Welding Technology in Developing Countries, Department of Mech. & Ind. Engg., University of Roorkee, Roorkee-247667**
October 27-29, 1988	National Seminar on Statistics in Medicine, Health and Nutrition.	To discuss Data-Base and Analysis in Health and Nutrition—Present and Future.	Department of Statistics National Institute of Nutrition, Hyderabad.	Dr. K. Visweswara Rao, Organising Secretary, National Seminar on Statistics in Medicine, Health and Nutrition, Department of Statistics, National Institute of Nutrition, Indian Council of Medical Research, Jamai Osmania, Hyderabad-500 007
Dec. 15-17, 1988	National Conference on Fluid Mechanics and Fluid Power	To provide a forum for exchange of information on topics in flcid mechanics and design, research and development activities in areas like power generation, aerodynamics, fluidics, biomechanics, etc.	Harcourt Butler Technological Institute, Kanpur.	Dr. N.L. Kachhara, Organising Secretary, 16th National Conference on Fluid Mechanics and Fluid Power, Mechanical Engineering Department, Harcourt Butler Technological Institute, Kanpur-208002

Workshop on Autonomous Colleges

The College Development Council of Madurai Kamaraj University organised a five-day National Level Workshop on "Autonomous Colleges" with the aim of reviewing the working of the autonomous colleges in the country.

The UGC-sponsored Workshop was inaugurated on 18th February, 1988 by Dr. S.V. Chittibabu, former Vice-Chancellor of Madurai Kamaraj and Annamalai Universities.

In his inaugural address, he said, that Autonomy would confer academic freedom to institutions and teachers to design and implement new academic programmes.

Presiding over the function, Dr. S. Krishnaswamy, Vice-Chancellor of the University said that autonomy stands for accountability and it is a process of self-searching and self-analysis.

Representatives from as many as 46 autonomous colleges from all over the country participated in the workshop which made the following recommendations :

On Governance-Organisational Structures

The functions of the governing body relating to the ownership (IV d & e) need to be redefined

The provisions which refer to the service conditions and recruitment of the staff are superfluous, therefore need to be revised.

Regarding the composition of the Governing Body, the Office Superintendant/Bursar may be included as an ex-officio member.

On Financial Implications

Both teaching & non-teaching staff should be governed by the same terms and conditions of service at the time of their appointment.

If Finance Committee is to be formed in Government Colleges, the State Government nominee, preferably local may be nominated.

On Curriculum Development

Introduction of project work where students may work in small groups should be encouraged.

The number of students in a class is to be reduced.

Each college may evolve books according to its prescribed course. For this the UGC may organise courses on material production.

On Evaluation

The institutions must devise ways by which they will be able to respond to the outside world and make it responsive to its work also.

All care should be taken to protect the interests of students. The Universities and the Government should assure autonomous institutions that their students will face no discrimination.

English as Second Language

The ELT Study Group of the Central Institute of English and Foreign Languages (CIEFL), Hyderabad, recently organised an International ELT Seminar on **Theory and Practice of ESL : Reconceptualising Issues for India**. The seminar was inaugurated by Dr. V.K. Gaur, Director, NGRI, Hyderabad. Funded by the UGC, the seminar was attended by 53 delegates from India, Pakistan, Singapore and United Kingdom. About 60 observers were also present. The British Council extended its support by actively participating in discussions and by sponsoring Mr. Alan Tonkyn from the University of Reading, U.K. for the Seminar.

The 4-day seminar had 8 plenary sessions and 12 parallel sessions where 49 papers were presented and discussed. The topics discussed included Curriculum and Innovation; Materials Production and Testing; The learner as Resource Input in Language Teaching; Teacher Education (2 sessions); Language Teaching Methodology—a Reassessment; Theoretical Models in Language Teaching—Reading Theory; Theoretical Models in Language Teaching—Linguistics. Each paper presented at the Plenary Session had a discussant who highlighted issues from the specific paper for an open discussion among the participants. Each plenary-theme was picked up in the respective parallel session where papers on the same theme were presented and discussed. The final session was devoted to an evaluation of the seminar by the delegates and their suggestions for further ELT projects.

Conference on Ecology and Environment

Mugara — Gagan, Hingoli (MCH)—the Science Academy—recently organised a National Conference on Ecology and Environment at Hingoli (Maharashtra). Jointly sponsored by the Department of Science and Technology, Government of India, and the Marathwada University, the conference discussed various problems of dimensions and causes of Ecological balance, Environmental pollution, and Atmosphere and Climatic disturbances. Inaugurating the conference Dr. Ved Prakash Patil, Dean and Principal, Marathwada Agricultural University, Parbhani stressed the importance of the eco-balance and urged the participants to put forth boldly the immediate remedies to protect the environment. He exhorted them to study land implement carefully the waste and development in the country and particularly in Marathwada Region as the land under forests was only 3%.

Dr. Liyakat Ali Pathan, President, MCH in his keynote address requested the scholars to deliberate freely as the issues involved needed deeper understanding of the present and the future in their overall complexities by every individual, society and nation. He added that the truth, no doubt, had been perceived by the higher intelligentsia but to turn it into reality it should percolate to the grassroots and common people.

Over 60 teachers and scientists from diverse fields participated in the conference at which 19 research papers were discussed.

Value Orientation in Education

A UGC sponsored symposium on Value Orientation in Education was held at the Aditanar College of Art and Science, Tiruchendur (Tamil Nadu). During the course of 4-day deliberations the symposium identified values for inculcation in the student community through a meaningful dialogue and a fruitful discussion. These included, amongst others, (i) Personal Values, (ii) Social Values, (iii) Moral Values, and (iv) Spiritual Values.

It was also felt that a certificate course in Value Education be introduced in all the affiliated colleges of the universities in India with the aim to inculcate in the minds of the students an awareness of the need for moral, ethical, spiritual, social, cultural and fundamentally personal values in life to make them worthy citizens of India. A syllabus for the course was also suggested. The other recommendations made at the symposium included implementation of value education programme in autonomous colleges and suggestions for an effective methodology; various modes through which value education could be imparted; feasibility of introducing values through co-curricular and extra curricular activities, etc.

Utkal Varsity Forges Ahead

There are a number of research and development programmes in operation in Utkal University. The Department of Psychology of the university has been functioning as a Centre of Advanced Study with a view to promoting research and academic development of high standard under the DSA scheme, the University Grants Commission (UGC) has sanctioned research support to the Departments of Anthropology and Philosophy. Details are being worked out for the implementation of the scheme. The UGC has also sanctioned a sum of Rs. one lakh to the university to pursue research on superconductivity.

The university has already established Academic Staff College for the training of university and college teachers. The College is expected to become functional from May this year. The university also have English Language Teaching Centre, Population Research Centre, Centre for Regional Studies, Curriculum Development Centre which are fully operational.

A post-B.Sc. Diploma Course in Computer Science of one year duration has recently been introduced in the university. The MBA course offered by the University is also being strengthened by funds made available by the UGC.

ASSOCIATION OF INDIAN UNIVERSITIES

CORRESPONDENCE COURSE IN EVALUATION METHODOLOGY & EXAMINATIONS

Applications are invited from College/University teachers for admission to Correspondence Courses in Evaluation Methodology and Examinations at Basic Level, Intermediate Level and Advanced Level/Special Professional Course. The duration of each of the three courses is six months. A personal 'Contact Programme' for three days is planned for each of the three courses. Universities/Institutions sponsoring candidates can meet the registration/course fees from out of unassigned grants by UGC.

Request for prospectus and application form accompanied by crossed Indian Postal Order for Rs. 10/- drawn in favour of the Secretary, Association of Indian Universities and a self-addressed stamped envelope (Rs. 2) should be sent to the Project Director (Exams), Association of Indian Universities, 16 Kotla Marg, New Delhi 110002. Last date for receipt of applications is extended to **25th April, 1988** for both sponsored and non-sponsored candidates

Language and Peace

The Department of Russian of the Central Institute of English and Foreign Languages (CIEFL), Hyderabad conducted a three-day seminar on "Russian Language : Language of Peace, Friendship and Cooperation" in connection with Festival of USSR in India at Hyderabad recently. The Governor of Andhra Pradesh, Hon. Smt. Kumudben Joshi, inaugurated the seminar while Prof. S.K. Verma, Director, CIEFL presided. Prof. E.I. Motina, the leader of the Soviet delegation, also addressed the gathering. Prof. T. Navaneeth Rao, Vice-Chancellor, Osmania University, delivered the valedictory address.

The seminar discussed the following topics at its 5 sessions : (a) Russian Language and World Peace; (b) Teaching of Russian; (c) Indian perception of USSR and Indo-USSR Friendship; (d) Indo-USSR Cooperation; and (e) Russian Literature and World Peace.

In addition to the paper presentations, two one-hour sessions were conducted as open discussion forums at which prospects of Russian Language Teaching in India and Multi-lingualism were discussed.

Narcotics Consultative Committee

Shri M.L. Jain, Vice-Chancellor, Bhopal University, has been nominated as Member of the Narcotic Drugs and Psychotropic Substances Consultative Committee constituted by the Government of India under the chairmanship of the Union Finance Minister. The committee has been entrusted with the task of suggesting ways and means to achieve drug abuse control, treatment, rehabilitation of addicts and also take up periodic review of the working of Narcotic Drugs and Psychotropic Substances Act and the rules framed thereunder.

News from Agril. Varsities

National Workshop on Lab-to-Land Programme

A National Workshop on Lab-to-Land Programme was recently held at Anand. Jointly organised by Indian Council of Agricultural Research (ICAR) and the Gujarat Agricultural University, the workshop was inaugurated by Shri Yogendra Makwana, Hon'ble Minister of State for Steel, Government of India. In his address Mr. Makwana emphasised the need for improvement in productivity of oilseeds, pulses and rice in Eastern part of the country. He said that the dryland farming had become one of the most important components of agricultural scenario and it was essential to develop most appropriate technologies to mitigate unexpected calamities caused by unprecedented drought. In this context, he said, the role of scientists had become all the more vital to develop alternate technologies and cropping patterns. The role of development agencies was even more crucial to extend these technologies to the farmers who are by and large small, marginal and poor in such areas, he added.

Shri R. Parthasarathy, Vice-Chancellor of Gujarat Agricultural University who presided, emphasised the importance of Lab-to-Land Programme and highlighted the different ways to boost-up the agriculture production in the State.

Dr. C. Prasad, Deputy Director General (Agril. Extension), ICAR differentiated the working pattern of Lab-to-Land Programme from the other extension programme. He said each category of farming community like farmers, farm women, farm youths and school drop-outs required both specific technologies and specific extension methodologies to promote agricultural development. Further, he clarified that Lab-to-Land Programme was specifically designed to educate and train small and marginal farmers and landless agricultural labourers and to promote agricultural and allied programmes for increasing production, improving working conditions, generating more employment and creating more wealth. Moreover, this programme also helps in verifying and identifying appropriate agicultural technologies by providing the scientists an opportunity to work directly in the farmer's fields. The improved technologies have helped the farmers in achieving atleast 50 to 250 per cent increase in production of different crops including vegetable and fruit crops. There has been more than 60% increase in milk, egg & meat production, due to improved feeding & management practices.

The Workshop, which was attended by over 100 delegates from all over the country, further emphasised the need to adopt both short-term and long-term extension approaches vis-a vis the short-term approach currently being adopted under the general extension system in the country. The ICAR is promoting schemes of both appropriate technologies for farms women as well as studying the impact of modernization on farm women.

The Lab-to-Land Programme of ICAR has assumed a leading role in transferring proven and most viable agricultural technologies from Laboratories to the farmers' fields with the active participation of the research scientists. The programme has already completed 8 years with considerable achievements in the field of crop production, livestock production, piggery, poultry, fisheries, bee-keeping, mushroom culture, lac culture, sericulture, home science, etc.

Inter-face of Biological & Social Sciences

A nine-day workshop-cum-training programme sponsored by the Ford Foundation was recently organised by the Directorate of Extension Education of the Birsa Agricultural University (B.A.U.) to investigate the inter-face of biological and social sciences in farming systems research. The three-fold objectives of the workshop-cum-training programme were to (1) evperience and understand the inter-face between social and biological scientists in farming systems reserch; (2) gain awareness of the role of farm women in farming systems; and (3) work with case studies on the above two points.

The Workshop, which was inaugurated by Dr. (Mrs) Aruna Bagchee, Joint Commissioner, Ministry of Agriculture, Govt. of India, was attended by 13 Research personnel drawn from India and abroad, 14 delegates from different Agricultural Universities in India and 23 participants from different schemes and institutions. The research personnel included experts from Cornell University, Florida University and Thailand.

The Workshop also organised field trips. During the course of the field visits, the participants visited Murma, Tilta, Chutu and Dahutola where work is being done by the B.A.U. under the women's development programme of the Ford Foundation.

New Tomato Cultivars

Scientists of Fruit Research Station, Marathwada Agricultural University, Parbhani have evolved new Tomato hybrid ATH-1, of 110-120 days duration having yield potential of 300 to 310 qtls/ha. The Tomatoes possess good transpost and keeping quality having red colour, moderately resistant to early blight and virus. University Scientists have also evolved a Tomato variety, ATV-1 of 100-110 days duration yielding 300 qtls/ha. The fruits are having blood red colour and less seed than Pusa Rubi. This variety is moderately resistant to early blight and leaf curl virus. Both tomato hybrid and variety are giving 27 per cent higher yield than Pusa Rubi. State Release Committee has approved these tomato cultivars for cultivation in Marathwada.

Transfer of Technology to Farmers

The Directorate of Extension Education of the Punjab Agricultural University has developed new techniques for the transfer of technology to the farmers. The new farming techniques developed by the University are disseminated through its three wings, i.e., Farm Advisory Service, Communication Centre and Extension Training Unit. While the Communication Centre educates the farmers through its publications, radio and television programmes and exhibitions, the Farm Advisory Service takes the new farming techniques at the door-steps of the farmers by organising demonstrations, conducting adaptive trials, field days, etc. The Extension Training Unit organises various training programmes of short and long duration in poultry farming, dairying, mushroom growing, bee-keeping, etc. With these efforts, the Directorate of Extension Education has proved instrumental in enhancing the agricultural produduction in the State manifold. The Extension Education experts of the University carry farm technology to small and big farmers who are equally treated and benefited with the new research findings of the University.

Standing Committee to Meet at Mangalore

216th Meeting of the Standing Committee of the Association of Indian Universities will be held at Mangalore University on April 9, 1988. Dr. P.V. Salvi, Vice-Chancellor, Marathwada Agricultural University, Parbhani and President, Association of Indian Universities will preside. A number of important issues like procedure for nomination of the members on the ACU Council, Use of Hindi language in teaching in primary, secondary and college level and in research work, Ways and means for making the university system work effectively as envisaged in the New Education Policy, and collaboration of AIU with other international university organizations are likely to come up for discussion.

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month' while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research scholars and students of education are welcome to use these resources. The Library is open from 9-00 a.m. to 5-30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

ADDITIONS TO AIU LIBRARY

Adiseshiah, Malcolm S. ed. *Economics of environment*. New Delhi, Lancer. International, (c 1987), 76p.

Ahrendt, Kenneth M., ed. *Teaching the developmental education student*. San Francisco, Jossey-Bass, 1987, 116p.

Arvinda Chandra and Shah, Anupama. *Non-formal education for all*, New Delhi, Sterling, (c 1987) x, 189p.

Awasthi, J.P and Sharma, Mani. *Classical Indian philosophies and their practice in education*. Agra, National Psychological Corp. 1988, viii, 78p.

Ayyar, Chandrika. *Education and intellectual pursuits : With special reference to Bengal 1817-57*. Kanpur, Prajna Prakashan, 1987, vii, 351p.

Bajaj, J.L. and others. *Finance commission and backward states*. Lucknow, Print House, (c 1985) 286p.

Bergquist, William H. and Armstrong, Jack L. *Planning effectively for educational quality*. San Francisco, Jossey-Bass, (c 1986), xviii, 218p.

Bickman, Leonard, ed. *Using program theory in evaluation*. San Francisco, Jossey-Bass, 1987, 116p.

Brinkman Paul T., ed. *Conducting interinstitutional comparisons*. San Francisco Jossey-Bass, (c 1987), 112p.

Chinnappa, S. Paul. *British system of education in India*. Delhi, Swati Publications, 1988, 315p.

Cooper, Cary L. and Payne, Roy, ed. *Stress at work*. New York, Wiley. (c 1978) xii, 293p.

Elton, Lewis. *Teaching in higher education : Appraisal and training*. London, Kogan Page, (c 1987), 211p.

Fox, William M. *Effective group problem solving*. San Francisco, Jossey-Bass. (c 1987), xvii, 204p,

Gaur, Achal Kumar. *Centre-state financial relations and finance commissions*. Allahabad, Chugh, 1985, x, 364p.

Joshi, P.L. *Introduction to zero base budgeting*. New Delhi, Deep & Deep (c 1987), 137p,

Khurana, Amulya. *Self actualization among teachers*, Agra, National Psychological Corp., 1986, xiii, 136p.

Mohanty, Sunil Behari. *Lifelong and adult education*. New Delhi, Ashish. 1988, 205p.

Molyneux, Frank and others, ed. *Learning for life : Politics and progress in recurrent education*. London, Croom Helm, (c 1988) 320p.

Pani, Raghunath. *Integral education : Thought and practice*. New Delhi, Ashish. 1987, xxii, 633p.

Ranganathan, S.R. *Colon classification*. Bangalore, Sarada Ranganathan Endowment for Lib. Science, 332p.

Sapra, C.L. and Aggarwal, Yash, ed, *Education in India : Some critical issues*. New Delhi, National Book Organisation, 1987, xiii, 170p.

Shivarudrappa, G. *Vocationalisation of education*, Bombay, Himalaya, (c 1988) viii, 379p.

Singh, Atul Kumar. *Finance commissions in India : An analytical study*. Allahabad, Chugh, 1987, x, 280p.

Sinha, R.K., ed. *Centre-state financial relations in India : Various aspects, irritants, framework for action*. New Delhi, Deep & Deep, (c 1986) 331p.

Smith, Peter and Kelly, Mavis, ed. *Distance education and the mainstream : Convergence in education*. London, Croom Helm, (c 1987), 207p.

Thimmaiah, G. and Rao, Hemlata. *Finance commission and centre-state financial relations*. New Delhi, Ashish, 1986, ix, 139p.

Unesco, *Reflections on the future development of education*. Paris, Author. (c 1984), 123p.

Verma, M.M., ed. *Human resource development*. New Delhi, Gitanjali, 1988, xxii, 219p.

Ward, Christine. *Preparing and using objective questions*. Cheltenham, Stabke Thornes, (c 1981), ix, 240p.

Wexler, Philip. *Social analysis of education : After the new sociology*. London, Routledge & Kegan Paul. (c 1987) xix, 215p.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

HUMANITIES

Philosophy

1. Balakandan, S. *Perspective on social conflict and social change in the light of contemporary Indian thought with special reference to Gandhian thought.* Madras.

2. Divyaprabha. *Arihant Tattwk : Ex alochanatmak adhyayan.* Vikram. Dr. B.B. Rainade.

3. Muktiprabha. *Jain darshan mein yog : Ek alochanatmak adhyayan.* Vikram. Dr. B.B. Rainade.

4. Padmaja, K. *Philosophy of Sree Chattambi Swamigal.* Calicut. Dr. E.J. Warrier.

5. Varadan, Geetha. *Truth and freedom : A study of philosophies of Martin Heidegger and Sankara.* Madras.

Religion

1. Bhanot, Neerja. *Pala abhilekhon mein pratipadita Baudha Dharma tatha darshana.* Delhi.

Fine Arts

Music

1. Indira Devi, N.C. *Facets of Bhakti as illustrated by Annamacharya and Tyagaraja.* Delhi.

Language & Literature

English

1. Ashok Kumar. *Certain aspects of the form and functions of Hindi-English code-switching.* CIEFL.

2. Dhakshinamurthy, V. *The theme of sacrifice in Tagore's major fiction.* Madras. Dr. T. Prabhakar.

3. Ganapathy, T.K. *The ordeal of consciousness in the early novels of Irish Murdoch.* Madras.

4. Goel, Kunj Bala. *Language and theme in Anita Desai's longer fiction.* Banasthali. Mrs. S. Wali.

5. Goswami, Rita. *Nature and spirit in the poetry of Gerard Manley Hopkins.* Gauhati. Dr. H.N. Gohain.

6. Madhavan, P. *Clefts and pseudoclefts in English and Malayalam : A study in comparative syntax.* CIEFL. Dr. K.A. Jayaseelan.

7. Mahashabde, A.M. *The theme of disintegration in Indo-Anglian fiction.* Vikram. Dr. K.K. Kamkar.

8. Misra, Sabita. *Modifiers in English and Oriya noun phrases : A comparative study.* Sambalpur. Prof. Haldhar Panda.

9. Nithanantha Bhat, V. *Themes and techniques in the short stories of Mulk Raj Anand, R.K. Narayan and Raja Rao.* Calicut. Dr. S. Kandaswami.

10. Patil, Anand Balu. *Western influence on Marathi drama, 1818-1947.* Shivaji. Dr. P.R. Kher.

11. Pattanaik, Umesh Prasad. *Distribution of empty categories in Oriya and English.* CIEFL. Dr. K.A. Jayaseelan.

12. Prafulla Kumari, V. *Robert Penn Warren as a socio-historical novelist.* Madras.

13. Prema Kumari, D. *Cultural nationalism in the novels of Chinua Achebe and Ralph Ellison.* Osmania.

14. Rama Devi, S. *Individual investment in meaning-making : A conceptualization in ESL curriculum design.* CIEFL.

15. Radhamani, S. *An intensive study of the plays of E.W.H. Auden.* Madras.

16. Rengaramanjam, P. *Marxist critiques of modernism : A reconsideration.* CIEFL. Prof. S.V. Pradhan.

17. Srinivasa Raghavan, Tattai Ramanujachary. *John Ruskin's social philosophy as revealed in his writings : Social and political.* Madras.

18. Suguna, A. *Coleridge and the influence of Kantion Philosophy of biographica literaria.* Madras.

19. Sundararaman, M.N. *Indian drama in English : A thematic study.* Madras.

20. Sundari, G. *The confessional element in American and Indian English poets : A comparative study.* Madras.

21. Walia, Usha. *The meaning of form in William Faulkner's major novels.* Panjab.

Russian

1. Kumar, Ramadhikari. *Lexico-stylistic peculiarities of Russian newspaper texts and some problems relating to its translation into English.* JNU. Prof. R.S. Bagga.

Sanskrit

1. Bajrang Lal. *Mewar ke Sanskrit abhilekh.* Rajasthan. Dr. N.C. Pathak.

2. Bandyopadhyay, Manjula. *An analytical development of the exposition of Kautilya usages.* Calcutta.

3. Bandhopadhyay, Udaychandra. *The first mandala of the Rigveda : A textual study.* Calcutta.

4. Gupta, Kusum Kumari. *A socio-religious study of Vishnudharmottara Purana.* Jammu. Dr. Ved Ghai.

5. Mishra, Harmohan. *A study in advaita epistemology with special reference to advatia sidhi.* Utkal.

6. Nayak, Nirmala. *Nature of values in the Balmiki Ramayan.* Utkal.

7. Pandey, Jagadishwar. *Jogacara bhumi sastra ka alochanatmak adhyayan evam uski aprakasita dasa bhumiyon ka samskaran.* Burdwan. Dr. Anantalal Thakur.

8. Peerukannu, S. *Prasastrapadabhasya : A critical study.* Kerala. Dr. K. Vijayan.

9. Purkayastha, Sujata. *The philosophy of Sarvajivatmamuni.* Gauhati. Dr. K.P. Sinha.

10. Ramamurti, H. *Saundaryalahari : A study.* Madras.

11. Ravi Prakash. *Contrastive morphological analysis of vedic and classical Sanskrit.* Panjab.

12. Rekha Reddy, Shashi. *A study of the commentaries of Ghanasyama on Sanskrit dramas.* Osmania.

13. Rugmini, N.S. *Subhadra prinaya of Nall Dikshita : A critical edition and study.* Madras.

14. Sahu, Niranjan. *A critical edition of the Bhangavapurana.* Calcutta.

15. Tewari, Vinod Kumar. *Sanskrit kavya mein Nala Katha.* Delhi.

Punjabi

1. Devindar Kumari. *Bhagti kal de santan dee sampradayik Sadbhavana.* Panjab.

2. Gurcharan Singh. *Jammu Kashmir dian Punjabi lok waran.* Jammu. Dr. Kartar Singh Suri.

3. Harjinder Kaur. *Guru Nanak dian varan da loktatvik adhyayan.* Jammu. Dr. Devinder Singh.

4. Jasbir Kaur. *Influence of religio political movements in Panjab on Nanak Singh's novels.* Jammu. Dr. Devinder Singh,

5. Mahinder Pal Singh. *Kashmir de Punjabi lok geetan da Sabhiacharak pakh.* Jammu. Dr. Baldev Raj Gupta.

6. Rajnish Bahadur Singh. *1971 ton 1980 tak de Punjabi novelan vich kirsani jeevan.* Jammu. Dr. Devinder Singh.

Hindi

1. Acharya, S.K. *Rajendra Yadav : Vyaktitva evam krititva.* Saurashtra. Dr. G.D. Agrawal.

2. Awasthi, Mrinalini. *Hindi mein agat Angrezi shabdon ka arthparak adhyayan.* Delhi.

3. Chandla, Renu. *Hindi upanyason mein trasadiya tattwa, 1950 se 1980 tak.* HP.

4. Devangan, Uma Devi. *Padmakar ke abhivyanjana shilpa ka anusheelan.* Ravishankar. Dr. Vishnu Prasad Pandey.

5. Dutt, Krishna. *Bank shabdavali ka bhasha vaigyanik adhyayan.* Rajasthan. Dr. S.S. Dixit.

6. Dwivedi, Rama Kant. *Chhatisgarh ke kavya ke sandarbh mein Shri Harithakur ke sahitya ka anusheelan.* Ravishankar. Dr. R.D. Sharma.

7. Gupta, Jai Prakash. *Maithilisharan Gupta dwara pranit prabandh kavyon mein nibadh dharmikpauranik aakhyanon ka adhyayan.* Panjab.

8. Gupta, Pratibha. *Pura pratik yugeen sandarbh aur Dr. Lakshminarayan Lal ke natak.* Ravishankar. Dr. S.J. Kekre.

9. Harjender Singh. *Hajari Prasad Dwivedi ke sahitya mein parampara aur adhunikta.* Delhi.

10. Joshi, Neema. *Swatantrayottar Hindi kahani mein chitrit samajik sambandh.* Delhi.

11. Labh Chand. *Adhunik samajik sandarbh mein Sursagar ka adhyayan.* Panjab.

12. Puri, Nirmal. *Chhayavadottar kavya mein saundarya nirupan.* Panjab.

13. Ramanathan, Tara. *A comparative study of the women characters in Kambaramayanam and Tulsi Ramayanam.* Madras.

14. Sarda, Bhagirath. *Reeti kaleen kavya mein neeti tattwa.* Osmania.

15. Sarda, V.G. *Satven dashakottar kahaniyon mein parivarik sambandh.* Marathwada. Dr. Dhanraj Mandhane.

16. Venkata Lakshmi Purushotham, Kommajosyula. *Hindi aur Telugu ke geethi natya : Vikas aur swaroop.* Andhra.

Urdu

1. Singh, Sukh Chain. *Jash Maleehabadi ke Asaleeb-i-Nasr ka tanqueedi mutala.* Jammu. Dr. S.L. Kalra.

Bengali

1. Sarkar, Chandana. *Biharilal Chakrabortir soundarjya bhabana-o samasamayik kabiganer upar tar prabhab.* Burdwan. Dr. Baidyanath Mukherjee.

Marathi

1. Narule, Shrikant Ganesh. *The poetry of G.D. Madulkar: A critical study.* Shivaji. R.T. Akkole.

Gujarati

1. Bhagat, Nita Jayantilal. *The formalistic approach in Gujarati creative writing and criticism since 1950.* Baroda.

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1. Shahnaz Begum. *A critical edition of the Dewan-e-Nihayatul Kamal of Hazrat Amir Khusran Dehlavi.* Cacutta.

Arabic

1. Mohammad Arifuddin Faruqi. *Editing of MSS Latiaful Isharat by A. Kasim A.L. Qushairi.* Osmania.

Tamil

1. Kaliyaperumal, A. *A critical study on the works of Chidambaram Adigal.* Madras.

2. Mailswamy, M. *A study of themes and their development in Jagasirpiyan's social novels.* Madras.

3. Muthukumaraswamy, C.N. *Studies in Annanmar Swamy Kathai.* Madras.

4. Pachiappan, M V. *Principles of stream of consciousness in Tamil novels.* Madras,

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1. Narayanan, S. *Kavyaprakasa : A critical study, translation and commentary.* Calicut. Dr. C.P. Achuthanunni.

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1. Gopalan, K. *A critical edition of Kurmapuranamu of Rajalinga Kavi.* Madras.

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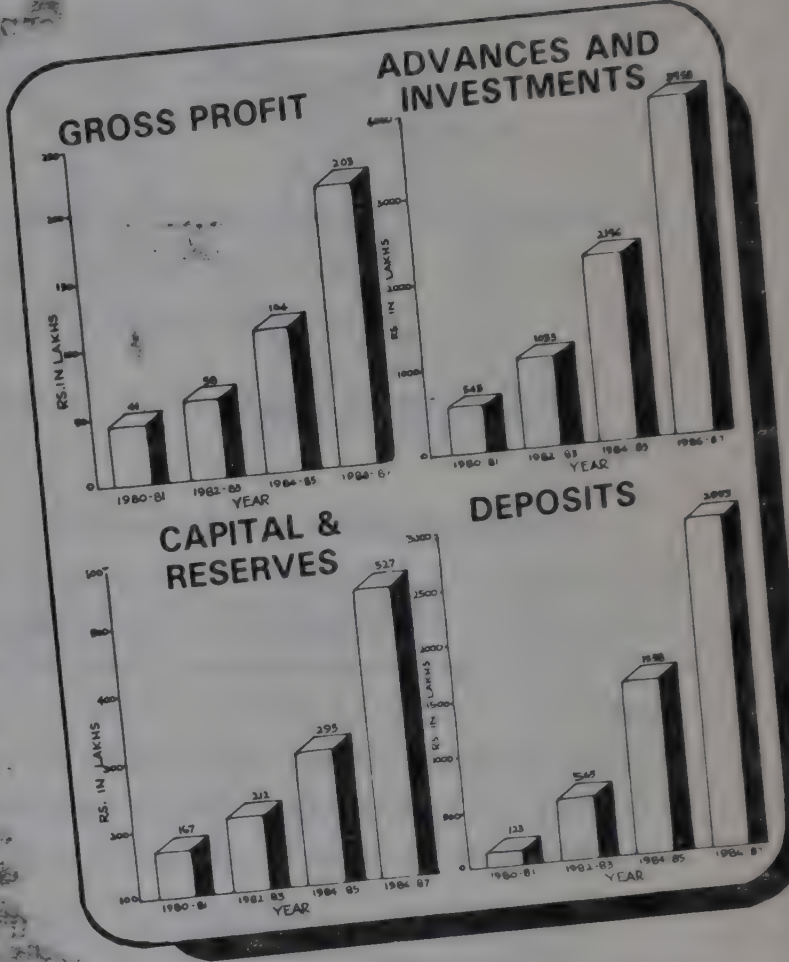

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(1)	Professor	Rs. 1500-60-1800-100-2000-125/2-2500
(2)	Principal Scientific Officer	Rs. 1500-60-1800-100-2000
(3)	Industrial Liaison Officer (T&P)	Rs. 1500-60-1800-100-2000-125/2-2500

N.B. (i) Pay Scales in respect of the above posts are under revision.

(ii) Candidates for the post of Professor may be considered for appointment as Associate Professor in the segment of Rs. 1500-2000 of Professor's pay scale in the same Department/Centre.

(iii) Candidates for the post of ILO (T&P) may be considered for appointment in the scale of Rs. 1500-2000 depending on the merit.

(b) DEPARTMENT/CENTRE/PROGRAMME WHERE POSITIONS WILL BE FILLED UP.

DEPARTMENT/CENTRE/ PROGRAME	POSITION	SPECIALISATIONS
(1) Deptt. of Electrical Engineering	Professor	Fibre Optics & Optical Communications.
(2) Department of Computer Science and Engineering	Professor	Computer Communication; Computer Vision: Computer Architecture, New Generation Computing; Software Engineering; Theoretical Computer Science.
(3) Department of Chemical Engineering	Professor	Fluid Mechanics; Heat Transfer; Mass Transfer; Thermodynamics, Chemical Reaction Engineering; Process Dynamics and Control; Environmental engineering; Computer Aided Design; Mathematical Modelling and Simulation; Chemical Engineering Plant Design.
(4) Centre for Bio-Chemical Engg. Research	(i) Professor	(a) Molecular biology of plant, Animal & Microbial Cell. (b) r-DNA technology/hybridoma and Vector Construction.
Bio-Conversion Programme in the Centre	(ii) **Principal Scientific Officer (Temp.)	Bioprocess Kinetics & Dynamics and process anylysis. Bio-process simulation and control with experience in software development.
(5) Centre for Applied Research in Electronics	(i) Professor	(a) Digital Signal Processing/Sonar Signal Processing. (b) Millimeter Wave Integrated Circuits.
	(ii) Principal Scientific Officer	Integrated Circuit Design and Technology.
(6) Centre for Materials Science & Technology	Professor	Physical Metallurgy/Ceramics; Fracture Toughness of Materials.
(7) Centre for Rural Development & Technology	Principal Scientific Officer	Expertise in the disciplines of Chemical Engineering. Mechanical Engineering, Chemistry and Biology with experience in rural development & appropriate technology.
(8) Centre for Management Studies	Professor	Management Information Systems/Management of Production Systems/Financial Management.
(9) Training & Phacement Unit	Industrial Liaison Officer	Organisation of training & placement activity.

**If a suitable candidate appropriate to this senior position is not found, the post can be filled at the level of Senior Scientific Officer Grade-I in the scale of Rs. 1200-50-1300-60-1900.

(C) MINIMUM QUALIFICATIONS/ EXPERIENCE PRESCRIBED FOR APPOINTMENT

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An eminent scholar with published work of high quality, actively engaged in research. Ten years experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding Engineer/Technologist with established reputation who has made significant contributions to knowledge.

(b) For the Posts of Principal Scientific Officer

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OR

Master's Degree in an appropriate field of Technology/Engineering or Ph.D. with 10 years experience in Research and Development.

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Prescribed application forms may be obtained from Deputy Registrar (Estt. I), Indian Institute of Technology, Delhi, Hauz Khas, New Delhi-110016 either in person or sending by post a self addressed stamped envelope (size 10 x 23 cms) bearing postage stamps of Re. 1.10 latest by 30.4.1988. Last date for submission of application forms alongwith crossed Indian Postal Orders worth Rs. 7.50 (No fee for SC/ST candidates) is **7-5-1988** for candidates in India and **14-5-1988** for candidates from abroad.

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	Reader	1	
	Lecturers	5	
2. Electronics	Reader	1	
	Lecturer	1	
Faculty of Home Science			
1. Child Development	Professor	1	
	Reader	1	
	Lecturer (Temp).	1	
2. Foods and Nutrition	Professor	1	
	Reader	1	
	Lecturer (Temp).	1	
3. Clothing and Textile	Professor	1	
	Reader	1	
	Lecturer (Temp).	1	
Faculty of Social Sciences			
1. Economics	Professors	2	Micro Economic Theory/ Theory of Economics Growth Research Methodology.
	Reader	1	Micro Economic Theory/ Theory of Economic Growth/ Research Methodology.
2. Political Science	Professor	1	Modern Political Theory/ Political Analysis/International Politics.
3. Sociology	Professor	1	Advanced Sociological Theories/Research Methdology Studies of Indian Societies Sociology of Organisation.
	Reader	1	Advanced Sociological Theo ries/Research Methodology Studies of Indian Societies Sociology of Organisation.
Faculty of Humanities			
1. English	Professor	1	Teaching Methods/Evaluatio and Course Development Criticism/Modern Poetry.

	Reader	1	Teaching Methods/Evaluation and Course Development/ Criticism/Modern Poetry.
	Lecturer	1	
2. Sanskrit	Professor	1	
Faculty of Fine Arts			
1. Visual Art	Professor	1	Aesthetics/Painting
	Reader	1	Aesthetics/Painting
2. Music	Professor	1	Hindustani Music Vocal/Instrumental
3. Dance & Dramatics	Reader	1	Kathak/Manipuri/Bharat Natyam
	Lecturer	1	Kathak/Manipuri/Bharat Natyam
4. Textile Designing	Reader	1	Weaving/Printing
	Lecturer	1	Weaving/Printing
Faculty of Education			
1. Education	Professor	1	Educational Psychology/ Educational Technology/ Educational Philosophy.
	Readers	4	English 1. Home Science 1, In-Service Education 1, Educational Technology 1.
	Lecturers	2	Foundations of Education 1, Teaching of Economics 1.
2. Physical Education	Lecturer	1	
Foundation Courses	Lecturer	1	M.A. Psychology/Philosophy/ Sociology/M.Sc. Home Science (Child Development) Desirable degree in Education.

Qualifications—As Recommended by U.G.C. (Will be supplied with application forms).

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Notes :
1. Teachers must become habitual wearer of KHADI on appointment.
2. Selection Committee may recommend higher start in exceptional cases on merit.
3. The Vidyapith reserves the right to reduce or increase the number of vacancies or not to fill-up any post advertised.
4. First class return journey rail fare (shortest route) for Professors and Second class for others payable to persons appearing at interview.

Applications on prescribed forms (seven copies) must reach the Secretary, Banasthali Vidyapith, P.O. Banasthali Vidyapith (Rajasthan) 304022 by **9th May, 1988.** Forms can be obtained by sending self addressed stamped envelope of 16 x 23 cm. size with Rs. 3.40 stamps or 8.40 stamps for registered post in favour of Secretary, Banasthali Vidyapith. However, for Professor's post Bio-data on plain paper (seven copies) may be sent to the Secretary in confidence. No. 1/88.

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(ADULT EDUCATION PROGRAMME)

Requires the following :

1. CO-ORDINATOR—1.

1. Essential—

(i) Good academic record in the subject of Adult / Continuing/ Community/Extension Education/ Community Development from a recognised Indian University or an equivalent degree from a foreign University.

(ii) M.Phil. or Ph.D. in a subject related to adult learning or a Ph.D. in a subject under Social Sciences or Education/Evidence of published learning meterials and learning resources on areas listed in—(i) above or published research in any of the relevant area/areas indicated above.

OR

(i) Good academic record with Master's Degree in the subject of Social Sciences/Social Work / Humanities / Education/ Sciences/Home Science.

(ii) Post Master's Diploma in Adult & Continuing Education from a recognised Indian University or an aquivalent diploma/degree from a foreign University.

(iii) M.Phil. or a Ph.D. in a subject related to adult learning or a Ph.D. in a subject under Social Science or Education or published learning materials and learning resources in Adult/Continuing/ Community/Extension education/ Community Development or published research in any of these area/areas.

2. Desirable

About 5 years experience of field work/teaching or research in a subject having bearing on Adult/Continuing/ Extension / Community / Non-Formal Education or Community Development. This condition may be relaxed on the recommendation of the Selection Committee.

Grade—1200-60-1900. (U.G.C. Scale, under revision)

2. PROJECT OFFICER—1.
Population Education

1. Essential

(a) Good academic record with at least 2nd class Master's Degree (C in seven point scale) in the subject of Population Education/ Demography or Social Science with specialization in Demography from a recognized Indian University or an equivalent degree from a foreign University.

(b) M. Phil. or Ph D. in a related subject or evidence of published learning materials and learning resources or published research in any of the relevant area/areas indicated above.

OR

Good academic record with Master's Degree in Social Science/Social Work / Humanities/ Education/Sciences/Home Science with Post Master's Diploma in Population Education / Demography.

2. **Desirable**

Two years experience of Field work or 2 yrs. teaching experience in the areas of Population Education/Demography or Social Science with specialisation in Demography.

Provided that if the Selection Committee is of the view that Research work of a candidate is of a very high standard it may relax any of the qualifications mentioned above. Provided further that if a candidate possessing Ph.D. degree/ M.Phil. is not available or not found suitable, a person possessing Master's Degree with good academic record may be appointed on the condition that he will obtain the required qualifications later on.

Grade—700-40-1100-50-1600. (U.G.C. scale, under revision)

Dearness allowance at Rajasthan Government rates. Provident Fund, Gratuity-cum-Insurance, Group Insurance benefits on confirmation.

Notes : (i) Teachers must become habitual wearer of KHADI on appointment.

(ii) Second class return jorney rail fare will be paid to persons appearing at interview.

(iii) The posts are temporary to be continued up to 31.3.90.

Applications on plain paper giving full details of qualifications and experience (duly supported with necessary documents) must reach the Secretary, Banasthali Vidyapith, P.O. Banasthali Vidyapith (Rajasthan) 304022 by **30th April, 1988. No. 20/87.**

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(A)	POSITION	PAY SCALE
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(2)	Lecturer/Senior Scientific Officer Grade-II/Design Engineer	Rs. 700-40-1100-50-1600
(3)	Senior Research Assistant (SRA)	Rs. 2000-60-2300-EB-75-3200 (Revised).

N.B. (i) Pay scales in respect of posts at serial No. 1 & 2 are under revision.
(ii) Appointments to the posts of SRA will be made on contract basis for a period ranging between 1 and 3 years.

(B) DEPARTMENT/CENTRE/PROGRAMME WHERE POSITIONS WILL BE FILLED UP.

(1) DEPARTMENT/CENTRE/ PROGRAMME	POSITIONS	SPECIALISATIONS
Department of Electrical Engineering	(i) Assistant Professor (ii) Lecturer	Communication, Microwave Systems, Image Processing and Pattern Recognition, Opto-electronics and Optical Communications, Digital Signal Processing, Micro-electronics and VLSI Systems, Digital and Linear Circuit Design, Control Theory, Large Scale Systems Theory, Computer Control, Expert Systems and Robotics, Computer Aided Design, Data Communication Networks, Microprocessor Applications, Computer Engineering, Software System Design, Distributed Computer Systems, Artificial Intelligence, Power Electronics and Industrial Drives, Electromagnetic Energy Conversion, Power Systems.
(i) Microprocessor Applications Programme	Senior Scientific Officer Grade-I/II	(a) Distributed Computer Control (b) Industrial Drives (c) Numerical Control of Machine Tools (d) Image Processing (e) Robotics (f) Biomedical Techniques

	(ii) Troposcatter Laboratory	Senior Research Assistant	Microwaves, Communication, Computers or Digital and Analog circuits.
(2)	Department of Computer Science & Engineering	Assistant Professor/ Lecturer	Computer Communication; Computer Vision; Computer Archietecture; New Generation Computing; Software Engineering; Theoretical Computer Science.
	E&R Network Programme in the Department	Senior Research Assistant	
(3)	Department of Mechanical Engineering	Assistant Professor	Thermal Engineering/Production Engineering.
(4)	Centre for Energy Studies (Energy Convervation)	Senior Research Assistant	Energy Convervation Solar Passive Architecture
(5)	Department of Chemical Engineering	Assistant Professor	Fluid Mechanics; Heat Transfer; Mass Transfer; Thermodynamics, Chemical Reaction Engineering; Process Dynamics and Control; Environmental engineering; Computer Aided Design; Mathematical Modelling and Simulation; Chemical Engineering Plant Design.
(6)	Department of Textile Technology	Senior Research Assistant	
(7)	Department of Chemistry (Photo chemistry Loboratory)	Senior Scientific Officer Grade-I/II	Organic Photo-chemisty, Synthesis, Spectroscopic Techniques.
(8)	Centre for Applied Research in Electronics	Senior Scientific Officer Grade I	Integrated Circuits Design, Computer Aided Measurement and Device Modelling.
		Senior Scientific Officer Gr. II (Temporary)	Micro-electronics Mathematics/Mathematical Micro-electronics
(9)	ITMME Centre	Senior Scientific Officer Grade I/II Design Engineer	Computer Applications
(10)	Centre for Management Studies	(i) Assistant Professor/ Lecturer	Management with experience in Management of Medium and Small Scale Industrial enterprises.
		(ii) Senior Research Assistant	
(11)	Centre for Materials Science & Technology	Assistant Professor/Senior Scientific Officer Grade-I	(a) Physical Metallurgy/ceramics, Fracture Toughness of Materials (b) Physical Metallurgy/ceramics Substructural Studies of Materials using TEM.
(12)	Centre for Biomedical Engineering Research (Preventive Cardiac Unit)	Senior Scientific Officer Grade-II	Bio-medical Engineering.
(13)	Centre for Rural Development & Technology	(i) Senior Scientific Officer Gr. I	Expertise it the disciplines of Mech. Engg., Chemistry and Social Sciences with experience in rural development and appropriate technology.
		(ii) Senior Research Assistant	
(14)	Industrial Design & Development Centre	Senior Research Assistant (Temporary)	Industrial Design
(15)	Centre for Atmospheric Sciences	(i) Senior Scientific Officer Gr. II (Temporary)	Biomechanics with experience in experimental techniques related to Cardio-Vascular Flows.
		(ii) Senior Research Assistant	
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		(iii) Senior Design Engineer	Electronic Engineering/Video Systems Engineering/Television Engineering. Thorough familiarity with Video Studio equipment.
		(iv) Senior Research Assistant	

(C) MINIMUM QUALIFICATIONS/ EXPERIENCE PRESCRIBED FOR APPOINTMENT

(a) **For the posts of Assistant Professor**

(i) Departments of Electrical Engineering, Mechanical Engineering, Chemical Engineering, Computer Science & Engineering and Centre **for Materials/ Science & Technology**.

Good academic record with a Doctor's degree in a relevant field. About 5 years evperience of teaching and/or research and development.

Provided further that candidates not possessing Ph.D. may be considered if they have to their credit equivalent research published work or design/ development work of a high order either in the Institution or in an Industry.

OR

In the case of persons to be recruited from Industry or Professional fields, candidates should possess good academic record with recognised professional work of about 7 years which should include innovation and/or research and development.

(ii) **Centre for Management Studies**

Good Master's degree in Management & Systems/Business Administration/Industrial Engineering, Operational Research and Management Science preceded by a Bachelor's degree preferably in any branch of engineering. About 5 years relevant experience.

(b) **For the posts of Lecturer**

(i) **Departments of Electrical Engineering and Computer Science & Engineering.**

(a) Master's degree in appropriate field of Engineering/Technology.

(b) Consistently good academic record with a Bachelor's degree in Engineering/Technology. First class at Bachelor's degree and/or Master's degree level.

(c) One year's relevant professional experience outside academic/ research institutions

Provided further that if a candidate does not possess professional experience or a person possessing such experience is not found suitable, the persons appointed will be required to obtain desired professional experience within a period of five years of his appointment failing which he will not be able to earn future increment, until he fulfils this requirement.

(ii) **Centre for Management Studies**

Good Master's degree in Management & Systems/Business Administration/ Industrial Engineering, Operational Research and Management Science preceded by a Bachelor's degree preferably in any branch of engineering. One year's relevant experience.

(c) **For the posts of Senior Scientific Officer Grade I**

Bachelor's Degree in an appropriate field of Technology/Engineering or Master's Degree in an appropriate field of Science with 7 years' experience in research & development.

OR

Master's degree in an appropriate field of Technology/Engineering or Ph.D. with 5 years' experience in research and development.

Experience

(i) **For the posts in ITMME Centre**

Experience of handling and using Mini Computers Systems for Industrial Applications particularly in the area of Maintenance, Tribology and Dynamics.

(ii) **For the posts in Educational Technology**

Experience of producing/script writing/editing of video films in Science/ Engineering subjects.

(d) **For the posts of Senior Scientific Officer Grade-II**

(i) **Department of Computer Science & Engineering, Centre for Applied Research in Electronics, Microprocess or Applications Programme and ITMME Centre**

Bachelor's Degree in an appropriate field of Technology/Engineering or a Master's Degree in an appropriate field of Science with 2 years experience in Research and Development.

OR

Master's degree in an appropriate field of Technology/Engineering or Ph.D. degree.

(ii) **Centre for Bio-medical Engineering & Research.**

M.B.B.S. degree with good academic record and one year experience in Research and Development or one year's experience in a recognised Hospital of which at least 6 months must be in general medicines. Candidates with experience in Cardiology/ICCU and having interest and aptitude in handling applications of physical sciences and engineering to Bio-medical problems preferred.

OR

Bachelor's degree in Electrical (Electronics) Engineering with 2 years experience in Research and Development. Candidates with work experience in Bio-medical Data Management preferred.

(e) **For the posts of Senior Design Engineer**

Bachelor's Degree in an appropriate field of Technology/Engineering or a Master's degree in an appropriate field of Science with 7 years experience in Research and Development.

OR

~~Master's~~ Degree in an appropriate field of Technology/Engineering or Ph.D. degree with 5 years experience in Research and Development.

(f) **For the posts of Design Engineer**

Bachelor's Degree in an appropriate field of Technology/Engineering or a Master's degree in an appropriate field of Science with 2 years' experience in Research and Development.

OR

Master's Degree in an appropriate field of Technology/Engineering or Ph.D. degree.

(g) **For the posts of Senior Research Assistant**

(i) Microprocessor Applications Programme, Centre for Energy Studies, Textile Technology, Centre for Atmospheric Sciences, **E & R Network Programme, Troposcatter Laboratory, and Centre for Management Studiets.**

Bachelor's Degree in an appropriate field of Technology/Engineering for posts in Engineering disciplines; Master's Degree in an appropriate field of Science/Mathematics in the case of other disciplines.

(ii) Educational Technology Facility

Post-graduate degree in Mass Communication / Education with first class Bachelor's Degree in any subject.

(iii) Rural Development & Technology

Post-graduate Degree in Social Sciences/Chemistry/Agriculture/ Biology or Bachelor's Degree in Technology/ Engineering.

(iv) IDD Centre (Industrial Design)

(a) Master's Degree in Industrial Design/Interior Design/Graphic Design or Graduate Degree in Engineering with Diploma in Industrial Design/Interior, Design/Graphic Design/Arts.

(b) Master's Degree in Computer Management / Computer Programming/ Marketing Management or a Graduate Degree in Engineering with Diploma in Computer Programming / Marketing Management.

Experience

(i) For posts in Educational Technology

Experience in media production/ educational research.

(ii) For posts in Rural Development & Technology

Experience in the field of Rural Development and willingness to work in villages.

(iii) For posts in Management Studies

Experience in Management Laboratory, Computer Room, Public Sector enterprises and entrepreneurial development.

(iv) For the posts in IDD Centre

(a) Experience in Professional dealing with Entrepreneurs/Clients.

(b) Experience in Consumer product survey, product statistical analysis and working knowledge of IBM PC Compatible Computer Systems.

Prescribed application forms may be obtained from Deputy Registrar (Estt. I), Indian Institute of Technology, Delhi, Hauz Khas, New Delhi-110016 either in person or sending by post a self-addressed stamped envelope (size 10 x 23 cms) bearing postage stamps of Re. 1.10 latest by 30.4.1988. Last date for submission of application forms alongwith crossed Indian Postal Orders worth Rs. 7.50 (No fee for SC/ST candidates) is **7.5.1988** for candidates in India and **14.5.1988** for candidates from abroad.

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Advertisement No. 1/88

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Age : Preferably below 40 years.

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Age : preferably below 40 years.

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Age : Preferably below 40 years.

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Minimum Qualification and Experience

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Age : Preferably below 40 years.

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Age : Preferably below 40 years.

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Minimum Qualification and Experience

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Age : Preferably below 40 years.

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1. Class X pass in Science Stream with at least 5 years experience in a reputed workshop as Technician or National Certificate in appropriate trade with at least two years experience in the trade in reputed workshop or technical Institute.

Age : Preferably below 30 years

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Minimum Qualification and Experience

1. Three years diploma in Electronics/Electrical from a recognised polytechnic or Institution.

2. Minimum one year working experience (in any Computer Centre after passing the Diploma)

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Age Limit 35 years.

10. Lathe Machine Operator

Scale of Pay : Rs. 950-20-1150-EB-25-1500/-(revised scale)

Minimum Qualification and Experience

I. Class X or Matriculation from a recognised board.

2. Trade certificate in Turner/Machinist from a recognised I.T.I. (Industrial Training Institute)

3. Minimum One year experience (Practical) after passing from I.T.I.

Age Limit 35 years.

11. Library Sorter

Scale of Pay : Rs. 950-20-1150-EB-25-1500/-(revised scale)

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Age : Preferably below 30 years.

N.B. :—Pay scale for the post of Lecturers are likely to be revised shortly.

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Applications on plain paper should specifically include :

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4. Educational Qualifications giving divisions, and percentage of marks obtained in high school and above.
5. Experience.
6. Post in which engaged at present with scale of pay.
7. Present pay and total emolument.
8. Basic pay demanded.
9. Signature of the candidate.

The Institute reserves the right to increase or decrease the number of posts and also the right not to fill any of the posts.

P.G. Nair
DEPUTY REGISTRAR (ADMIN.)

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Calcutta-700 064.

before 13th May, 1988. Completed application forms must reach **the Registrar, SINP by May 27, 1988.**

D.N. Bhattacharjee
REGISTRAR

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University News

MONDAY, APRIL 11, 1988 Rs. 1.50

INDIAN SCHOOL OF MINES DHANBAD
ANNUAL CONVOCATION
FEBRUARY 22 1988

enth annual convocation of ISM (Left to Right) Shri A. Sarkar, Acting Registrar, Shri A.N. Haksar, Chairman, ISM Executive Board, Shri D.P. Dhoundial, Director General, Geological Survey of India and Prof. (Dr.) D.K. Sinha, Director, Indian School of Mines.

SCHOOL OF CORRESPONDENCE COURSES

ANDHRA UNIVERSITY : WALTAIR

ENTRANCE EXAMINATION NOTIFICATION—JUNE, 1988

ENTRANCE EXAMINATION UNDER MODIFIED SCHEME FOR LIBERALISED ADMISSION INTO B.A./B.Com. COURSES WITHOUT ANY FORMAL ACADEMIC QUALIFICATION.

Applications are invited from the candidates residing in India for Entrance Examination for admission into Ist year B.A./B.Com. Degree courses for the academic year 1988-89 through the School of Correspondence Courses.

No minimum qualification is required to appear for the Entrance Examination, except that candidates should have completed 21 years of age by 1-7-1988. Candidates who pass the Entrance Examination are eligible for admission into Ist year B.A./B.Com. courses in the School of Correspondence Courses only.

Applications will be issued from 4th April, 1988. Duly filled in applications should reach this office on or before **10-5-1988**. Applications received after the due date of 10-5-1988 will be accepted on payment of the penal fee at the following rates :

Upto 12-5-1988 (for first two days)	Rs. 2/-
Upto 20-5-1988 (between third and tenth day)...........	Rs. 10/-
Upto 30-5-1988 (between eleventh and twentieth day) ...	Rs. 50/-

Applications received after 30-5-1988 will not be accepted even with maximum penal fee.

Date of B.A. and B.Com. Entrance Examination is 19-6-1988.

Under Modified Scheme of Entrance Examination, there will be four papers of 'one hour duration each and the examination will be conducted in two sessions on Sunday, the **19th June, 1988** from 9.00 a.m. to 11.00 a.m. and from 2.00 p.m. to 4.00 p.m. Examination will be conducted in one centre in each district in Andhra Pradesh besides the existing centres in Andhra and Nagarjuna University jurisdiction.

Intending candidates may write to the undersigned by DESIGNATION for application form, syllabus and model question papers by sending Rs. 10/- by demand draft drawn in favour of the Director, School of Correspondence Courses, Andhra University, Waltair alongwith one self-addressed envelope of 9"x6" size (Without affixing postal stamps). The candidates may also remit cash at the cash-counter in the School towards application form. **Postal Orders and Cheques will not be accepted.**

The students of Introductory Course of this School need not pay Rs. 10/- towards the cost of application form, syllabus etc., and also need not send the requisition letter for the Entrance Examination application form. The School will send the necessary application form to the students of Introductory Course. However, the duly filled-in application form should be returned to the School will all the necessary enclosures on or before 10-5-1988.

The prescribed application forms, syllabus and model question papers are also available at our following Study Centres on payment of Rs. 10/- through Demand Draft: 1. Government College, Srikakulam: 2. M.R. College, Vizianagaram; 3. Mrs. A.V.N. College, Visakhapatnam; 4. Govt. College, Rajahmundry; 5. P.R. Govt. College, Kakinada; 6. Sir C.R. Reddy College, Eluru; 7. SRR & CVR Govt. College, Vijayawada and 8. A.C. College, Guntur.

The School has no agents and takes no responsibility for the prospectus issued and promises made for admission by any other institution.

Note : The applicants should clearly mention whether they require Entrance Examination application form either for B.A. or B. Com.

Waltair
Dt. 19-3-1988.

Prof. V. Abraham
DIRECTOR

UNIVERSITY NEWS

VOL. XXVI APRIL 11,
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A Weekly Chronicle of Higher Education published by the Association of Indian Universities

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Editor :
SUTINDER SINGH

Student Services Programme for Higher Education

Dawoodbhai A. Ghanchi*

The Overview

Higher education in modern India has the conceptual and philosophical legacy of the British system of university education because of historical reasons. The two distinguishing features of the Indian higher education system are the predominantly scholastic contents of the curriculum and the formality of its operations. Whatever the Faculty, be it Arts or Commerce or Science or Engineering or any other, these two features pervade the thinking and the actions of all—the teachers, the administrators, the students and even the community. As a result, it is found that the system has developed many an ailment like :

* The curriculum is information loaded, and is much less related to the contemporary and future needs of society.
* The curriculum is lopsided, and caters to only a limited segment of the student's personality.
* There is very little meaningful participation of the learner in the adventure of learning at any stage, whether it be planning, learn-teaching, evaluating or monitoring.
* Teaching, both at the undergraduate level and the postgraduate level, is devoid of excitement, challenge and delight.
* Institutions of higher education, whether a college or a university, have very largely ceased to be organic centres of growth of human resource in its multifaceted forms.

The Diagnosis

There are several reasons that have contributed to these ailments of the system. First, there is an exponential expansion of higher education in the country in the wake of the development of the primary and the secondary stage. This has not allowed us to attend to the needs of quality. Secondly, because of historical reasons, the system has remained too static and allergic to change and innovation. Thirdly, we have had to make do with limited resources which have been utilised primarily for the bare survival needs of the system. Finally, and consequently, we have tried to tread the easiest path, namely, the pursuit of the degree sans knowledge, sans expertise, sans sensitivity to social needs, and sans an urge to excel.

The Approach

In spite of so many shortcomings, the Indian system of higher education has managed to survive, thanks to the tremendous resilience it has developed over the years. However, looking to the needs of national development in the years to come, we must adopt a selective approach to the problems of the system. We must attack the most crucial spot, namely, the curriculum because it is the perception of the curriculum that will provide the ethos to reinvigorate the system by mobilising all the resources that go to make the system work in

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**Pro-Vice-Chancellor, North Gujarat University, Patan-384265.*

accordance with our goals. This approach would require us to take care of three things namely :

- Adoption of an appropriate model of higher education;
- Articulation of specific goals of higher education;
- Development of a comprehensive programme of student services as an inevitable component of the curriculum.

The Model

The system of higher education in a community may be structured on anyone of the following models, or it may be a combination of several of them.

- *The godown model* which serves the purpose of storing the educands to keep them as they are at the best or to save them from the possible damage caused by ignorance or moral corruption.
- *The bank model* which is slightly better than the godown model inasmuch as it does not merely store but tries to make it earn an interest when invested.
- *The factory model* which processes the material in order to refine it or give it a new shape, and market it, mostly at a profit.
- *The human resource development model* which involves the educand in the adventure of life-making, of changing the self through volition, and of constantly moving towards higher excellence.

The Indian system of higher education has, for long, remained wedded to the first three models entailing a terrible cost in the form of human quality and worth. It needs to be given a new direction by changing into a life-generating model based on participation and involvement by all. The document of the new Education Policy of India emphasises the urgent need of developing the human resource development model for the system of our higher education. The advocacy of autonomous institutions is a pointer in that direction.

The Goals

The system of higher education obtaining in a community may have at its roots a hierarchy of goals like the following :

- *Survival goals* which seek to preserve the existing modes of life, of thinking, of production and of social interaction without undertaking the risks of change, of redefinition and of innovation.
- *Development goals* which seek to take a step forward from the mere preservational needs. They aim at developing selected potentials of the educand, maybe mental, emotional and so on.
- *Enrichmental goals* which combine development with experimentation, with innovation, with excellence, with creativity. In short, it aims at maximising the flowering of the human potential that has always been the dream of the humankind.

The present scenario of higher education in India is characterised by the existence of a large number of nonviable institutions that barely scrape through and have, therefore, a very limited scheme of educational goals to offer. This is why the document on the New Education policy rightly emphasises the need of strengthening the weak institutions and making them instruments of a drive for educational excellence. It's going to be an ongoing movement for realising enrichmental goals in the years to come.

The Student Services Programme

The modern concept of curriculum pertains to a comprehensive offering of activities and experience of a range ministering to the variety of needs of the young persons pursuing higher education. The scholastic component provides, not merely bits of information of a relevant discipline, but challenges the entire cognitive domain of the learner's personality. The proposed scheme of restructuring the undergraduate curriculum into a three tier scheme is supposed to challenge the mental faculties of the young learner at the college.

The non-scholastic domain of the curriculum, much of which is usually the hidden part of the scheme, is as wide as life itself. It needs to be spelt out, and an appropriate strategy of operation to be laid out. This part of the curriculum has hitherto remained completely neglected. If at all it has been given a place in the scheme of work, it has been either spasmodic or ad hoc, and even in either case much of its educational significance has been lost sight of. The NCC, the NSS, the NSO, the extra-curricular activities and the umpteen number of activities that are found in the calendars of institutions of higher education have long been ritualistic in performance and anaemic in their impact on the psyche of the student world.

Fortunately, the document on the New Education Policy has made a positive case for developing an integrated dish of learning experiences for the students at the institutions of higher education in India. It has been left to the imagination of the planners, the teachers, and the administrators of education to design a comprehensive programme of student services as a part of the curriculum so that the student at the college and university :

- * develops cognitive abilities to his full capacity,
- * learns to take decisions about issues of life,
- * communicates effectively his ideas, views and commitments,
- * relates himself meaningfully with other members of specific social groups, and evinces social sensitivity to the problems of life in the contemporary world,
- * possesses a scale of values that go to distinguish him as a responsible member of a civilized society wedded to human dignity and worth,
- * exhibits a fine sense of aesthetics and preferences in the midst of a world flooded by cheap commercial stuff,
- * strives to constantly excel in personal as well as professional pursuits, and
- * specialises in more than one productive skill, cognitive or manual or technological, and tries continually to update his equipment in order to cope with emerging challenges in the world of knowledge and work.

Viewed in this light, the corpus of student services to be offered by an institution of higher learning must comprise a large variety and range of activities and programmes.

The Corpus

The student services programme can be conceived of as a ten pronged scheme of various activities and experiences to be offered to all the students of a college or of a university as a matter of right for every student throughout his stay at the respective institution.

1. Plant services
2. Basic needs services
3. Housing services
4. Personality development services
5. Social stitching services
6. Study support services
7. Learning facilitating services
8. Career development services
9. Ameliorating services
10. Recreation services.

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C. F. T. R. I., MYS

Each of the above services consists of a number of specific activities as enumerated hereunder.

1. *Plant Services*

An institution of higher education meant for the youth of the country must provide for essential plant facilities like classrooms of adequate size with sufficient furniture and learning equipment, special rooms like laboratories of all types (e g. a maths lab or a computer room or an audio-visual studio, etc) a library, a workshop, study halls, seminar rooms, cubicles, etc. The plant services must take care of the proper maintenance of the facilities, their cleanliness, aesthetics and upkeep. They must conform to the highest norms required to build up a wholesome climate in the institution to promote a healthy growth of the physique, of the mind and of the spirit of the youth of the country. In fact, it must be our endeavour to develop alternative models of plant facilities for our institutions of higher education.

2. *Basic Needs Services*

These services are intended to serve the basic survival needs of the age group studying in our colleges and universities. They must take special care of the verious vulnerable groups like girls, backward class students, tribals and economically deprived sections of society. The services must comprise the following :

- * Drinking water facilities with an assured supply of adequate, clean, fresh potable water.
- * Food services which should include canteens run efficiently with due provision of quality food at reasonable price served in the most hygienic way; hostel mess facility under the supervision of the students; and provision of subsidy to the needy students on the price of the food supplied.
- * Toilet facilities in adequate number and of a high standard of cleanliness. Due care must be taken for the needs of women students.
- * Relaxation facilities which should include parks, gardens, fountains, outdoor seating places, and centres for rest and ease.
- * Health services which must include a first aid centre or centres depending upon the number of students and buildings; preventive, curative and promotional facilities for health, referral

services, medical checkup on a regular basis, subsidised medicare for the needy; institution of a health centre with facilities for infirmaries and temporary hospitalisation; information services on age-specific diseases, drug deaddiction and rehabilitation; and programmes of physical fitness, sports and health education.

* Provision of articles of daily needs like snacks, milk, fruits etc. For this vending machines can be installed and cooperative stores can be started. Students must be protected from exploitation through vigilance committees formed of faculty and students.

3. *Housing Services*

Every institution of higher education must have a hostel or a hall or halls of residence as an essential condition of recognition or affiliation. There must be a separate residential facility for girls. In addition to its own facility on the campus, the institution must arrange with voluntary agencies as well as individuals for residential facilities at reasonable rent. Such facility must be approved by the institution and periodically checked for cleanliness and healthful surroundings.

The residences must have adequate furniture and provision for protection against climatic rigours. There must also be a provision of personnel services including rectors, wardens, servants and so on for due care of the residential needs of the students.

There should be reception and guidance service in the hostel for the new students. There should also be a regular programme of orientation to facilitate adjustment to hostel life and to eliminate the possibilities of evil practice of ragging by seniors. There should be programmes like homestay, social celebrations, cultural programmes and parents' days to make hostel life livable and relevant to academic needs.

The students' health problems in hostels need special attention. There should be due provision for the treatment of the sick. Emergencies and accidents must be specially taken care of. A close liaison be established among hostel inmates, their parents, teachers, administrators and management bodies to diffuse crises and solve problems.

4. *Personality Development Services*

The normal scholastic curriculum of higher education does not cater to the multifarious needs of the complex personality of the youth as it is limited to the narrow domain of information gathering to pass the public examination. Hence, the need to provide services to enrich the other domains of the personality, namely the affective domain, the aesthetic domain, the social domain, the creative domain and so on. This would need careful nurturing by a sympathetic agent, maybe the teacher, the counsellor, the proctor or even a senior student. The activities would include :

* Training in intellectual skills like speech skill, debate skill, declamation skill, oratory and rhetorics.
* Training in social skills of friendship, leadership, group formation, conflict resolution, negotiation, resistance techniques etc.
* Training in performing arts like drama, dance, miming, role playing etc.
* Training in arts of drawing, painting, sculpturing etc.
* Training in creative writing, journalism, playwriting etc.
* Training in the use of the media, specially the radio, the TV, the film, and the press.
* Training in aesthetics with reference to hobbies, tastes, preferences and habits of food, drink and entertainment.

In fact, this is a vital dimension of the man-making enterprise called education which would require an ongoing, deliberate plan of action in the institutions of higher education in the country.

5. *Social Stitching Services*

These services are intended to make education society-oriented so that it turns out young men and women who have sensitivity to social needs. The society owns the educational institution and tries to interact with it meaningfully so as to enhance its value by increasing its relevance and utility through a deliberate participation in the process of regeneration and change in response to the newer needs of the age. The services that must be rendered to the students are :

* Parent liaison with the institution through various means like newsletters, reports, meetings, open house, advisory cells etc.
* Community liaison through the programmes of celebrations, social service, camps, extension lectures, film shows, drives for specific purposes etc.

- * Training to the students in the skills of social service through workshops, field studies, placement in social service projects, etc.
- * Involvement of student representatives in social service bodies by being nominated on them say on youth clubs, womens' clubs, etc.
- * Sensitisation programmes on specific issues like social reforms, superstitions, evil customs like dowry, sati, child marriage, etc.

In short, it is the broad concept of socialisation of the youth that is sought to be put into practice through the social stitching services. It is through these services that the young men and women will discover themselves and acquire confidence in themselves to influence the society they live in.

6. *Study Support Services*

The student needs materials like books, journals, stationery, etc., to study efficiently. These should be available at the right moment and that too at a reasonable price. If need be, the price should be subsidised. Materials' banks should be established in every institution and should be well stocked. Only the right type of material should be used by them, and for this they should be guided properly. Materials like notes, guides, probable questions, etc. should be discouraged. The University Texbook Boards, the National Book Trust and similar agencies should be approached for quality books and ancillary materials for study. The state civil supplies corporations can be approached for the supply of stationery and other support material at controlled prices.

7. *Learning Facilitating Services*

Students joining institutions of higher education bring with them a hangover of dependent study habits and work style from their school days, whereas higher education demands a different set of learning styles for which they must be systematically trained. The following types of services should be provided for the purpose :

- * Efficient study habits including attending lectures, taking notes, participating in discussions etc., should be formed through training.
- * Library skills be similarly developed and training be imparted in using various library facilities and resources of learning.
- * Training for self-study skills should be provided so that participatory learning techniques are maximally taken advantage of.
- * Use of Educational technology like computers, VCR, microfilms etc , should be bought for use by the students in their daily learning chores.
- * Examination-taking skills should be developed for different types of tests and techniques for both internal and external examinations.
- * Special education aid for remedial and accelerated learning be provided to the students as per their needs.
- * Guidance-cum-counselling centres should be established for helping students in all their problems pertaining to their study; maybe for the selection of subjects, for the choice of electives,

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for solving learning problems, and for meeting the crises generated by failures.

* Night study centres and reading booths should be established for the use of those students who have inadequate facility for study at home.
* Distance learning advisement should be provided along with regular study in order that students can take advantage of alternative modes of learning.
* A system of home-room periods be instituted as a regular weekly feature of the schedule to freely discuss the learning experiences of the students in the college/university itself, and a positive, encouraging attitude be developed among the students in cooperation with their peer-learners.

Thus, the present unipolar approach of 'take it or leave it' shall have to give way to a cooperative and interactive one to make learning an exciting pursuit for our students at institutions of higher education.

8. *Career Development Services*

In order to make higher education meaningful to the learner, and to relate education to the world of work, students must be provided with a variety of career development services on the campus itself as well as in the community. These should include :

* Running guidance and counselling centres with equipment for psychological testing, latest information about jobs and careers, literature related to various openings and records of longitudinal studies on the impact of guidance on students.
* Training programmes for entering the world of work, like reading advertisements, getting application forms, filling in the said forms, procuring testimonials, preparing for interviews, taking a competitive examination, joining a job, following office protocols etc.
* Placement services whereby the institution establishes contacts with employers-individuals as well as corporations and arranges for timebound placement.
* Training for entrepreneurship so as to launch one's own business or industry, and for that purpose marshal resources and use skills to succeed in the enterprise.
* Training facilities on the campus as well as in establishments off the campus in various gainful occupations and skills. For this purpose present courses may have to be restructured and new ones may have to be devised, workplaces and workshops may have to be established. The whole gamut of vocational education will have to be explored for the purpose.

9. *Ameliorating Services*

With the expansion of higher education in India, we find a rush of first generation learners who are economically, socially and culturally deprived, and hence, are handicapped in taking advantage of the facility of higher education. To give them a head-start, ameliorating services should be offered not as a matter of charity but as a compensatory component of formal education. This would consist of the following :

* Free studentships on a liberal scale.
* Merit as well as means scholarships.
* Loans and subsidies for specific purposes.
* Offers of paid work of a large variety—teaching assistantship, library aid, manual work, etc.
* Recommendations for external help and supplementary income.
* Student-adoption schemes by Faculty and citizens.
* Guidance and help in emergencies like drought, famine, death in the family, economic distress, etc.

It is the warmth and sympathy in the approach and dealings with the students that will ultimately lead to the amelioration of hardship and catastrophe.

10. *Recreation Services*

Learning sans delight is sterile and transient, for learning is a dynamic, creative and exciting human adventure wherein the living interact with the living. Hence, the due place of recreational services in the scheme of education, whatever the stage might be. The educands at the higher education stage being effervescent youth of the community, there is a pressing need of providing deliberately a rich net work of recreational services. The following types should be offered :

* Establishment of different centres of recreation, creative and healthy like, an NRS centre, a hobby centre, an assembly hall, a theatre, a music hall, a do-it-yourself centre etc., all equipped suitably,
* Training for hobbies, performing arts, graphic arts and production crafts, both manual and mechanical,

- Training in creative literature, art appreciation, production of films, both movie and video, folk arts, etc.,
- Formation of itinerant artists' groups and their exchange with similar groups in other institutions,
- Organisation of regular recreational programmes, outdoor and indoor, of a large variety and encouragement for wide participation by students, faculty and the community, and
- Establishment of liaison with agencies like the Lalit Kala Akademi, Sahitya Akademi, and Sangeet and Natak Akademi etc., for exchange, of artists, organisation of training programmes, holding of demonstrations etc., and getting their financial and technical help for building up counterpart programmes in the institutions of higher education.

The corpus of services is, thus, vast and varied. Our students have been virtually starved of these essential educational inputs so far, and have been fed upon a timid and anaemic examination-oriented programme. Now is the time to redeem ourselves by providing an exciting avenue in the form of student services.

The Organisational Framework

The student services programme shall need a well-knit organisational framework at the university and every affiliated or constituent college consisting of the following personnel :

- A dean of students.
- An assistant dean of students at the university.
- A student counsellor assisted by a required number of assistant counsellors for specific roles like psychological testing
- Student advisors

The said personnel shall be duly qualified and shall have personality traits and expertise to instil faith, in the students and win their confidence. They shall have a suitable cadre position and shall be paid as per their assignments. They shall be provided with the services of supporting staff, technical and menial, and shall have adequate resources with necessary powers to utilise them.

The Operational Strategy

The student services programme is conceived as a part and parcel of the educational programmes of the university and the college. Hence, to operate it effectively, the following shall be needed :

- A provision of statutory budget with assured source of income.
- An in-built provision of evaluation, feedback and monitoring by involving in it the administration, faculty, students and community.
- An ongoing training programme for all the participants in the services, namely, the faculty, the students, the administrators and the support personnel.

Conclusion

The concept of comprehensive student services programmes provide the hitherto missing component of the Indian system of higher education inherited from a colonial historical context. If the institutions of higher education in India are to pay the role of nurseries of future leadership—intellectual, social, political, economic, industrial, and cultural—both at national and global levels, higher education shall have to consist of a comprehensive curriculum supported by myriad student services in order to be an instrument of transformation and development. The time for that is here and now. □

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UNIVERSITIES AND LAW COURTS

T. K. Tope*

I

Duty of the Universities

The Supreme Court laid down that it is the duty of the University to see that no college affiliated to it shall give admission to students more than the prescribed number. Waking up at the last moment and then relying upon legal provisions causes great hardships to students.

(Narendra Bahadur Singh v. Gorakhpur University
A I R 1987, S.C. 1154)

Note : Many Universities fix a last date for admission to various courses. This is very essential. Similarly, it is also essential to fix a date early in the first term when colleges must convey to the Universities the number of students on rolls for various courses. It would be necessary to have flying squads to visit colleges and to ensure that no college has admitted more than authorised students, Guilty colleges must be penalised. Adequate provision in the University Acts must be made. Government must not interfere when Universities take a decision on this point.

II

Natural Justice

Members of the disciplinary committee appointed to enquire in the conduct of a person, should not participate in the final decision to be taken in that case.

(Institute of Chartered Accountants v. Loka Ratna
(1986) 4, S.C.C. 537).

III

Selection of Books and Bias

A committee was set up to select books for educational institution. Some of the members of the committee were themselves authors whose books were to be considered.

The Supreme Court laid down that in such cases possibility of bias cannot be excluded.

(Mohapatra and Co. v. State of Orissa
(1984) 4 S.C.C. 103)

Note : All educational institutions should have a rule that books of the members of Selection Committee for books, will not be prescribed. The only exception should be in case of persons who are required to be members of such committee ex-officio. In such a case the doctrine of necessity is applicacle.

IV

Law Course

Bombay High Court laid down that the rule of the Bar Council of India, which prohibited law students from pursuing other courses of study during the period of the study of law, was bad in law. In this case the person pursued his study for Chartered Accountants examinations while studying law. The Bar Council of Maharashtra refused to enrol him as an Advocate. The Court issued a writ of mandamus and directed the Council to enrol him as an Advocate.

(Peray Jal Pardiwalla v. Bar Council of India
A.I.R. 1987, Bom. 283)

Note : Many universities have a rule prohibiting a student to pursue two postgraduate courses simultaneously. One doubts whether in view of this ruling such a rule would be valid. LL.B. course is not a postgraduate course according to the Supreme Court. Hence, it appears that a rule which prohibits a law student from pursuing M.A., M.Com. or M.Sc. courses would be bad.

V

Admissions to Medical Faculty

The Supreme Court laid down following guidelines for admissions to medical faculty.

**Former Member, Law Commission and Vice-Chancellor, University of Bombay (1971-77).*

1. Present structure of postgraduate medical courses in existence in various States are allowed to continue upto 1992. From 1993 there will be one pattern of postgradate courses namely a three year course without any housemanship.

2. All universities and institutions are directed to take steps to bring about such amendments in their courses as may be necessary to conform to first directive.

3. The court pointed out that it did not intend to make any provision in regard to super specialities and other higher degrees.

4. Selection examination shall be conducted by the All India Institute of Medical Sciences, New Delhi. The announcement for holding of such selection examination shall be made on October 1 of every year. Examinations shall be held on second Sunday of January. The results shall be announced within four weeks from holding the examination. Admission will commence two weeks after the declaration of results. The courses of study shall commence in every institution providing for such study throughout the country from May 2.

(**Dinesh Kumar** v. **Motilal Nehru Medical College** (1987) 4, S.C.C. 459)

It is recommended that the entire judgement should be studied by Deans of Medical Colleges.

Medical Examination

Passing M.B B.S. examination at the first attempt is important in medical education. An interesting case was decided by the Supreme Court. A candidate was unable to attend classes and clinics and submit examination form as he was seriously ill and was hospitalised during the first term of III M.B.B.S. He passed M.B.B.S. examination with the next batch. The Supreme Court decided that he cannot be said to have passed the examination in second attempt. His admission to M.S. course must be determined as if passed the M.B.B.S. examination at the first attempt.

(**Abhijit** v. **Dean, Govt. Medical College, Aurangabad**, AIR 1987, S.C. 1362).

VI

Elections

Elections to various university bodies are held according to the system of single transferable vote. At such elections a certain quota of votes is also fixed for declaring a candidate successful. But a situation might arise when after eliminating all other candidates, only one candidate remains in the run but he does not secure the necessary quota of votes. Even then such a dandidate must be declared elected. The Kerala High Court was interpreting relevant sections of the Kerala University Act and the Statutes made thereunder.

(**M. Gopi** v. **A. Shamsuddin**, AIR 1988, Kerala, p. 22)

Which is the proper forum for challenging election to the various bodies in universities. Such elections are held under the Statutes passed for the purpose. Hence, if any election is to be challenged, it must be challenged firstly according to the provisions of the University Act and the Statutes made under the Act. The Supreme Court laid down that Section 58 of the Gujarat University Act which provides for reference of the dispute relating to election to any Authority of the University, to the State Government is mandatory. Hence, an aggrieved person must first approach the State Government and cannot move the High Court directly under Art. 226.

(**Gujarat University** v. **Noha Rajguru**, AIR 1987 SC 66)

VII

Minority Educational Institutions and Regulatory Measures

Frank Anthony School Employees' Association Case, (1987) 4 Supreme Court cases p. 707 or AIR 1987 SC 311) though is a case with respect to a school and therefore not with respect to higher education, the principle of law laid down in that case is likely to be applied to institutions of higher education. Moreover, it lays down a very important principle regarding the conditions of service of teachers in minority educational institutions. The Court laid down :

Conditions of service pertaining to minimum qualifications of teachers, their salaries, allowances and other conditions of service which ensure security, contentment and decent living standards to teachers and which will consequently enable them to render better service to the institution and pupils, cannot be said to be violative of the fundamental rights guaranteed by Art 30 (1). The management of a minority educational institution cannot be permitted under the guise of the fundamental rights guaranteed by Art 30(1) to oppress or exploit its employees any more than any other private employee. (p. 328)

Another important principle laid down in this case is regarding the right to approach a Tribunal for redress of grievances arising out of disciplinary action resulting in removal, dismissal or reduction in rank.

The Court laid down :

Section 8(3) provides for an appeal to the Tribunal constituted under Section 11, that is, a Tribunal consisting of a person who has held office as a District Judge or any equivalent judicial office. The appeal is not to any departmental official but to a tribunal manned by a person who has held that office as a District Judge and who is required to exercise his powers not arbitrarily but in the same manner as a Court of appeal under the Code of Civil Procedure. The right of appeal itself is confined to a limited classes of cases, namely, those of dismissal, removal or reduction in rank, and not to every dispute between an employee and the management. This limited right of appeal, the character of the authority constituted to hear the appeal and the manner in which the appellate power is required to be exercised make the provision of an appeal perfectly reasonable in our view. (p. 329)

It may be noted that the school in this case was a private unaided minority school. If teachers in such a school have the right to approach a Tribunal for redress of their grievances arising out of the action of the management resulting either in removal, reduction or dismissal, teachers in all educational institutions will have this right. **Thus, teachers in minority educational institutions whether in the secondary schools or in institutions of higher education have a right to approach a Tribunal in case the penalty is removal, reduction in rank or dismissal from service.**

As a corollary to the above judgement, it is submitted that the regulations regarding the age of superannuation of teachers in minority institutions are likely to be covered by the expression 'conditions of service'. Hence if the age of retirement laid down by the University is 60 (sixty) it would be applicable to teachers in minority institutions also. It would be illegal for the management of a minority institution to continue in service a teacher or even the head of the institution beyond the age of superannuation laid down in the regulations of the University.

Another important judgement relating to the minority educational institutions and the application of other laws of regulatory measure is '**Christian Medical College Hospital Union** v. **Christian Medical College Vellore Association** (AIR 1988, SC p. 37). The Supreme Court laid down that the provisions of the Industrial Disputes Act (Act No. 14 of 1947) are applicable to minority institutions. In this case, three employees of the Hospital were dismissed by the Management. Hence, the State Government made a reference to the Labour Court. This reference to the Labour Court was challenged by the Association before the Madras High Court which decided in favour of the Association. Hence, the Union appealed to the Supreme Court. The Court laid down that the Industrial Disputes Act is applicable to the Minority Institutions. The Court referred to the International Covenant on Economic, Social and Cultural Rights 1966 and to Arts 41, 42 and 43 of the Constitution of India. The Court also referred to some decisions of the American Supreme Court.

Note : It may be noted that the Supreme Court of India in Frank Anthony Public School's case (AIR 1987, SC 311) has adopted the correct approach in protecting the interests of the employees in Minority Educational Institutions. In this case, it laid down that the provisions of Section 9A, 10, 11A, 12 and 33 of the Industrial Disputes Act are applicable to minority institutions.

A Problem—This is indeed a correct judgement. However, it has to be noted that Managements of educational institutions (both of majority and the minority) find themselves in a dilemma. Practically all University Acts provide for a Tribunal for deciding the disputes between the management and its employees. As the non-teaching staff of the educational institutions is in law 'Industrial Worker' Vs. (See, Bangalore Water Supply and Sewage Board vs. A. Rajappa (1978)2 SCC 213), it has a right to move the Labour Court. It also has the right to approach the Tribunal, constituted under the University Act. In many cases the non-teaching employees approach simultaneously both i.e. the Labour Court and the University Tribunal. This creates an embarassing situation for the Management. Hence, it is suggested that either the U.G.C. or the Association of Indian Universities, should take this issue with the Law Ministry, Government of India. Following two alternative remedies are suggested:

(1) Jurisdiction of the Tribunals constituted under the University Acts should be restricted to the case of members of the Teaching Staff only. The non-teaching staff should be governed by the provisions of the

Industrial Disputes Act. This remedy would require amendments to the University Acts.

(2) Tribunals under the University Acts should cover cases both of the teaching and non-teaching staff. This is possible only if Parliament amends the Industrial Disputes Act and makes a specific mention that the provisions of the Industrial Disputes Act would not be applicable to the employees in any educational institution provided that there exists alternate machinery for the pur pose.

Admission to Courses

The Punjab and Haryana High Court laid down that Minority Institutions, not receiving any aid from the Government are not bound by the policy and procedure laid down by an outside authority like the Director of Technical and Industrial Education in the matter of admission to courses (Ashu Gupta vs. State of Punjab, AIR 1987 P & H, p. 227). It is submitted that this is a correct judgement. For, in this case the Institution is not receiving any aid from any outside authority and the decision is only on the narrow question of admission to courses.

Guidelines for Determining Religious or/and Linguistic Minority

The Supreme Court laid down following guidelines to determine religious and/or linguistic minorities :

(1) A linguistic minority for the purpose of Art. 30(1) is one which at least must have a separate spoken language. It is not necessary that the language should have at least a distinct script for those who speak it.

(2) Religious or linguistic minorities are to be determined only in relation to the particular legislation which is sought to be impunged. Thus, if it is the State legislation, the minorities are to be determined in relation to the population of the State.

(*D.A.V. College Jalandhar vs. State of Punjab,* AIR 1971, SC 1737)

In other case, the Supreme Court laid down :

(1) The Arya Samajists who are a part of the Hindu Community in Punjab are a religious minority having a distinct script and are entitled to the guarantees under Arts 29 & 30.

(2) A University cannot impose on such minorities a medium of instruction and script not their own.

(3) No linguistic minority can claim that the University shall conduct its examinations in the language or script which the institution has the right to adopt.

(*D.A.V. College Bhatinda vs. State of Punjab,* AIR 1971, SC 1731).

Note : If linguistic minorities have a right to conserve their language and script and establish and administer educational institutions of their choice, universities in metropolitan cities will find it extremely difficult to prescribe media of instruction and examination. This problem assumes greater importance as a result of formation of linguistic states. Hence P. Jaganmohan Reddy, J. in Bhatinda College case suggested following solution :

"When the country has been reorganised and formed into linguistic states, it may be a natural outcome of that policy to allow colleges established by linguistic minorities giving instructions in the medium of language adopted by Universities in other States to affiliate to them.........No inconvenience or difficulties, administrative or financial, can justify the infringement of their guaranteed rights."

In the light of the above observation, it is suggested that Parliament may pass a law authorising say a university in Tamil Nadu to affiliate to itself colleges imparting instruction in Tamil language and situated in any other part of India. The Association of Indian Universities may take up this matter with the Ministry of Human Resource Development.

It is further laid down that it is not for the universities to decide whether a particular institution is a minority institution or not.

Following are the leading cases with respect to minority educational institutions :

1. In re Kerala Education Bill 1957. All India Reporter, S.C. 956.
2. Ahmedabad St. Xavier College Society vs. State of Gujarat (1974) 1 Supreme Court cases p. 717.
3. All Saints High School vs. Government of Andhra Pradesh (1980) 2 SCC 478, AIR 1980, SC 1042.
4. Frank Anthony Public School case, AIR 1987, SC 311.
5. Christian Medical College Hospital Union cases, AIR 1988, SC, p. 37. ☐

Convocation

Inter-disciplinary Approach

Dr. D.P. Dhaundial, Director General, Geological Survey of India, delivered the Convocation Address at the Tenth Annual Convocation of the Indian School of Mines, Dhanbad. Advocating an inter-disciplinary approach to the development of earth sciences, mineral sciences, human resources and related application and technology areas, Dr. Dhaundial observed, "It may be worthwhile to strengthen the system or to foster a culture of working togethar supplementing each other's efforts to a common objective with clear identification of roles of different disciplines or sub-disciplines in various sectors from the point of view of efficiency, better results and above all, for creating new challenging job avenues for the available trained manpower". Excerpts.

The classical stages of earth sciences and particularly geoscience in relation to continental studies, has transgressed into truely global domains in which land, ocean and atmosphere have to be viewed ensemble, be it for fundamental or resource, environmental studies or for the origin of life. Space missions and practical knowledge of planetory compositions, their morphology and environments progressively bring in the comparative and contrasting features with respect to the mother earth, its matetrials, elements, isotopes, crustal behaviour, cosmic phenomena, etc. Impacts of the increasing knowledge of extraterrestrial bodies and thoughts germane to those bodies, for example on the origin of life on earth on one hand and concentration of some resources on the other hand are influencing the concepts of the genesis and behaviour of the earth's crust. Satellite imageries provide, in some cases, better overviews, and perceptions of the land surface than one could even imagine on the basis of laborious, time consuming ground mapping. Digital enhancement of imageries has opened a new field to choose the data parameters most suited for specific geoscientific studies, resource identification, exploitation, monitoring, environmental studies and so on.

The revelations of ocean floor geology, resultant to extensive geophysical work and deep sea drilling, has rather suddenly transformed the understanding of the global tectonics in time and space. Notwithstanding the gaps and mismatches in some spheres and healthy criticism from some quarters, the theory of plate tectonics has provided a uniformitarian global mechanism explaining at least through 200-300 million years, the origin, distribution, redistribution, destruction of continents, micro-continents, mountains, volcanism, oceans, and also to better understanding of the changing patterns of the seismicity, gravity, magnetism in space and time. The theory has also created significant impacts on intra-crustal, crust-mantle studies and on ideas about genesis, distribution and concentration of resources. Ore genetic processes of certain kinds are within broad premises of prediction in respect of specific locations, belts and tectonic setting. Likewise, views have also been expressed regarding large inorganic gas resources within the crystalline rocks.

Isotopic studies are now a common means of investigation highly sophisticated laboratories in as much as such studies provide reliable evidences to decipher the time, chemical and physical milieu of the crystallisation, migration, contamination, cooling, reheating and other processes operating on the crustal or infra-crustal constituents including the concentration of the some mineral resources. The knowledge of chemistry, physics and micro-biology rather than lone dependence on conventional palaeontological techniques is a must for new thoughts on organic evolution and origin of primitive life.

In the field of research and exploration, most of these modern trends are being integrated in the conventional systems of airborne, on-land, off-shore surveys and laboratory inputs in Geological Survey of India (GSI) and other institutions. Computer culture in data processing and modelling is also fast gaining ground.

Engineering inputs in the mineral based sector has assumed frontline position owing to technological advancements. Mining engineers are no more confined to cut and dry formulae but are involved in hazardous job of mining both at the surface and at depth. Extraction of maximum resources from the oil fields on-land and off-shore is in itself a highly specialised engineering venture. Easily accessible resources are fast depleting and the demand has to be met from the deeper levels or from remote and from ground confronted with problems. In order to ensure safety in mines, to surmount geotechnical problems, to utilise changing grades of ore and to meet day to day exploration problems, and also to ensure energy conservation, efficiency of machines and the socio-economic need, etc. mine planning and operations have become really a complex job requiring multi-disciplinary inputs. We have to choose between the concepts of large scale mining with full mechanisation covering over the entire range of gigantic problems on one hand and the concepts of a number of small scale mining centres with semi-mechanised systems dovetailed with labour intensive system on the other hand, after due weightage given for situations in regard to terrain, ore parameters, infrastructure, socio-economic and industrial conditions. Choice of the package of technology befitted with adequate scientific guidelines should be harmonising with the industrial needs, time schedules, investments and returns, production parameters and life of mine as also with the environmental necessities.

The ore beneficiation technology is becoming increasingly important and vital. The application of beneficiation technology has to be kept in view from the initial stages of the identification of gradewise delineation of mineral occurrences to the final stage of pilot production. With low grade to sub-marginal resources and complex ores in abundance around fast depletion of the suitably located, rich deposits in a highly industrialised system is inevitable. Availability of mineral resources of the deep sea bed appears to be a far cry as yet. The non-renewable natural mineral endowment occurring in the form of low grades in any segment of the crust the world over, would therefore one day or the other attract exploitation by the highly industrialised and technology dependent society. Such needs would be more in case of developing countries like ours, where the low grade ores occur as a rule. As in the case of deep sea bed resources, this low grade avenue of large on-land resources are dependent on the technological developments in the field of ore beneficiation and extraction. The need for new materials, fundamental research on elemental abundances and concentrations, and extraction technology are in certain spheres inter-related activities. Separation and extractive metallurgy using high temperatures, hydrometallurgy, laser technology, etc. are quite in vogue and fast taking over the conventional systems particularly in respect of high quality materials, generating the demand of certain elements, minerals in low volume but of vital importance.

The point which perhaps is lost sight of, in such a complex and advanced earth science and technology developing systems is in regard to the identification of points or nodes at which one or two or more disciplines can be usefully intertwined in research exploration and industry. It may be worthwhile to strengthen the system or to foster a culture of working together supplementing each other's effort to a common objective with clear identification of roles of different disciplines or sub-disciplines in various sectors from the point of view of efficiency, better results and above all, for creating new challenging job avenues for the available trained manpower. The institutions and universities would perhsps be equally interested in this aspect as the quality and quantity of the products from the teaching Institutions will have to be shaped accordingly.

By virtue of the very characteristics of earth sciences and allied engineering, the trained personnel have to have a sound three dimensional approach engrained in the thinking process, coupled with strong observational faculty and predictive approach. On the other hand, more often than not, there is dominance of qualitative and empirical trends in the conclusions because of the inherent nature depending more on the concepts encompassing large number of variables. The earth's crust which reflects a cumulative history of various episodes of vertical and planer cycles since 3.8 or possibly 4.6 billion years, is bound to present large number of variables in all dimensions in relatively short time and space intervals.

In the modern developments and researches, diverse applications of physics, mathematics and chemistry, have been profusely used in geosciences to arrive at homogenised models so as to select the critical variables for analysis, synthesis and for ultimate quantitative conclusions in terms of the materials and processes. One factor most important in the growth of modern earth science in its totality, is a direct relationship of the laboratory data, however, minute as they may be, with the bulk of materials in the field and with the genetic or concentration in the processes. In other words, there should be greater and greater accent on marrying the micro and macro data for better scientific results. Such interlinking of data is vital in the concept of modelling—the catch word of the day.

Thus the interplay of earth

sciences with basic sciences and the extensive use of modern interdisciplinary techniques are inevitable for refined and useful scientific and quantifiable predictive approach. In the years to come such trends are also likely to be applicable to environmental appreciation. It also stands to reason that in such modern developmental trends in earth sciences and technology, any concept or model needs constant review in multidisciplinary sense both at academic and professional levels. For such an approach, human resource needs have also to be properly evaluated and curriculum evolved in its totality and in segments, must serve such multidisciplinary purposes, shaping a young mind so as to be quickly useful to the demands of the users in various sectors at the national level.

The current and future needs of the earth science development, in the national perspective are well known in terms of VII Plan. The availability of correct and modern data bases on varied parameters concerning the surface of the earth's crust and also for deeper down to at least a few kilometers for mineral, oil and gas resources, stresses and strains pattern in the rocks, data base on the landscape, atmosphere and so on, both on-land and off-shore have to be ensured. The faster such modern computerised data bases are built up, the precise and quicker could be the planning process and subsequent action implementation and also the identification of the blind alleys or grey areas in mineral development, technology, research and related training.

Organisations both in public and private sectors concerned with mineral exploration, exploitation and geoscience and also the universities and institutes like ISM, deeply concerned with the growth and application of earth sciences in the national perspective, need to come together so that a proper orientation could be given to the modern unified approach to data base systems. To begin with the Department of Mines, Ministry of Steel and Mines has already initiated a step in this direction and GSI and some public sector organisations, NIC, ONGC, etc. are at work on the preliminaries.

In general and in the national perspective the minerals and earth science based development could possibly be viewed rationally upto the turn of the century for integrated development plan. A new curriculum for higher education in earth sciences should be a part of this overall plan. The period could be broken into suitable phases with proper action plan so that the results of first phase could be put to use in following phase. In other words, the action plan for the remaining years of the VII Plan and the VIII Plan would be crucially important, if we wish to have a practical integrated view point developed upto the turn of the century for research, mineral resources, and rationally oriented technical and scientific manpower development. ☐

NATIONAL INSTITUTE FOR THE MENTALLY HANDICAPPED

Manovikas Nagar, Bowenpally P. O., Secunderabad 500 011

Admission to Bachelor's Degree Course in Mental Retardation
(1988-89 Session)

Applications are invited for admission to the first year of the Three Years' Degree Course in Mental Retardation conducted by the National Institute for the Mentally Handicapped, Secunderabad. The course is affiliated to the Osmania University.

Seats : The total number of seats are 17 from all over the country.

Eligibility : (a) The candidates must have passed 12th standard of the 10+2 pattern or equivalent examination with a minimum of 50% marks in aggregate (40% in the case of SC/ST candidates). Those candidates who are appearing for the 12th standard examination of 1987-88 session are also eligible to apply provided a certificate obtained from the Head of the educational institution, is enclosed alongwith the application. (b) Age : The candidate should have completed 16 years as on 1.7.1988.

How to Apply : Application form together with detailed prospectus containing the detailed instructions including eligibility conditions for admission to the above degree course can be had personally from the office of the Director, NIMH, Secunderabad 500 011 on submission of a demand draft for a sum of Rs. 5/- per set; or through post by sending a request alongwith demand draft for Rs. 5/- payable to the Director, NIMH, Secunderabad 500 011 alongwith a self-addressed stamped envelope for Rs. 7.50 of the size 28 cm x 12 cm, to the Director, National Institute for the Mentally Handicapped, Manovikas Nagar, Bowenpally P. O., Secunderabad 500 011 for despatching application form and prospectus by registered post.

Requests for application forms to be sent by post will be entertained upto 2 May, 1988.

Last date for receipt of filled-in application forms is **23 May, 1988.**

Architecture and Human Behaviour

Modern architecture with its excessive stress on aesthetics has been cut off from human behaviour, said Sri Karekar, noted Architect from Bangalore.

Inaugurating the three-day 30th Annual Convention of National Association of Students of Architecture (NASA) "Architecture and Human Behaviour" organised by Manipal Institute of Technology, Sri Karekar said it was necessary for architects to study human behaviour in detail and as far as possible refrain from concentrating only on the beauty of the building.

He called on the new generation of architects to strictly follow professional standards in their work. He stressed that an architect should work in harmony with civil engineers to evolve modern building designs conducive for human dwelling.

He cautioned the budding architects against defective designing and said negligence in drawing the blue prints of a superstructure could bring down both the building and the reputation of the community of architects.

JNU Entrance Examination

The Jawaharlal Nehru University has announced the schedule for the Entrance Examination for admission to various Programmes of Study at the University for the year 1988-89. The entrance test will be held in 24 Centres spread all over the country from 19 to 21 May, 1988. The application forms shall be issued upto 4th April, 1988. The last date for the receipt of application forms is 11 April, 1988. Announcement for admission to Direct Ph.D. and part-time programmes will be notified in due course.

Since JNU entrance examination for admission to various science disciplines has been accredited by the UGC on par with its National Educational Testing (NET) examination for the award of Junior Research Fellowships (JRF), candidates joining the M. Phil/M. Tech./Ph. D. programmes in the Schools of Computer and Systems Sciences, Life Sciences, Environmental Sciences, Physical Sciences and the Centre for Biotechnology on the basis of their *inter se* merit in the JNU test would now become automatically eligible for the award of JRF without their having qualified the NET examination conducted by the UGC. The accredition is for three years for the present.

Eligibility Test for Lecturers

Indira Gandhi National Open University (IGNOU) will perhaps be the first University in the country to hold eligibility test for the post of Lecturer in various disciplines. This test which shall be held on April 17, 1988 at Bombay, Hyderabad, Patna, Bhopal, Lucknow, Guwahati, Delhi and Calcutta will gauge the candidates from the quantitative as well as qualitative point of view. Various disciplines for which this test will be held are Public Administration, Economics, Chemistry, Life Science, Physics, Geography, History, Psychology, Computer, Library Science, Performing Arts, Political Science, Education and Home Science. The test shall comprise 2 parts viz. objective and reflective type. While objective type questions will be common for all candidates, reflective type shall be discipline based. Those who pass this test will be finally called for interview in that discipline. University will, therefore, attract the best possible talent in the country by way of this eligibility test.

News from Agril. Varsities

Energy in Agriculture

Institution of Engineers (India), Karnal Local Centre and the Indian Society of Agricultural Engineers, Hisar Chapter recently organised a Seminar on "Energy in Agriculture" at Haryana Agricultural University. Dr. Har Swarup Singh, Vice-Chancellor, HAU inaugurated. He said : In Indian agriculture, the energy derived from the sun has greatly influenced techniques and processes of crop production. Only about 10% is contributed by way of manpower, animal, fertilizers, pesticides beside fuels and electricity. Dr. Singh expressed concern for the depleting reserves of fossil fuels.

He emphasised energy plantation at various levels i.e. social forestry, farm forestry etc. to maintain the environmental and the ecological balance. Over the years, this can further contribute to the availability of wood for several purposes. Dr. Singh further stressed that efficient use of machinery and equipment in agriculture combined with effective care, timely use, management and operation with precision contributes to savings energy and increase in productivity. He exhorted the engineers to develop a comprehensive methodology taking into consideration the on and off farm energy, directly or indirectly put to crop production and household and asked the researchers to carry out micro level savings for proper planning by inter-disciplinary approach.

Professor M.L. Jain, Convenor of the Seminar and Chief Engineer, HAU said that amongst the various aspects of energy in agricultural production, the participants would discuss energy use pattern for production of paddy and wheat in Haryana, structure and pattern of energy sources in the state, bio-gas production from cattle waste as affected by saline water etc.

Seminar on Environment Pollution

Occurrence of toxic amount of fluoride in well waters has been reported in various parts of the country particularly, in Andhra Pradesh, Panjab, Haryana, Delhi and Rajasthan. The excessive intake of fluoride is toxic to human beings and causes many diseases, said Dr. Har Swarup Singh, Vice-Chancellor, Haryana Agricultural University (HAU) while inaugurating a 2-day seminar on Environment Pollution and its Management. Dr. Singh expressed concern over the imbalance in nature and stressed a thorough understanding of the agro-chemicals under different conditions and the possible adverse affects they may have. He urged upon the scientists to formulate strategies of judicious use of agro-chemicals and help in keeping the environment healthy and uncontaminated.

The seminar, being organised by the Department of Environment, Govt. of Haryana and Haryana Agricultural University, has attracted about 130 scientists from different disciplines

Lac Sheller Developed

The Agricultural Engineering Unit of the Birsa Agricultural University, whose Birsa seed drill has earned the appreciation of the I.C.A.R. and has been recommended for adoption by all the states in India, has now evolved yet another instrument for the extraction of Lac.

The scientists of the Unit have evolved three prototypes of Lac Sheller, which has the capacity to extract three times more of Lac compared to the conventional method without any waste. The approximate cost of the Lac Sheller is expected to be Rs. 350/-.

Till now Lac is being extracted by Dabia—a conventional tool. In this conventional system, the time taken is more and the extraction of Lac alongwith waste is much more to make it a profitable venture.

News from Abroad

Women in Scientific and Technological Development

The Third World Academy of Sciences with financial support from the Canadian International Development Agency plans to convene a major conference on "*The Role of Women in the Scientific and Technological Development of the Third World*" to be held in Trieste, Itlay during 3-7 October 1988.

The Conference will bring together a large number of leading women scientists and technologists in the Third World as well as some eminent women scientists and technologists from advanced countries, thereby enabling them to share experiences and exchange ideas in a number of issues, including :

* The Status of Women in Science and Technology in various Third World countries.

* Reasons for discrimination of women scientists in various countries of the Third World and measures to avoid such discrimination.

* Role of women in scientific leadership and decision making.

* The ways and means of involving young talented women in Science and Technology projects in the Third World.

* Identification of the most important achievements carried out by women from the Third World in various scientific fields.

* Characterization of fields where women seem more creative than men.

It is expected that the Conference and the Roundtable discussions, which will be held on specific themes during the Conference, will result in a 3-5 years Project which should help in providing a substantial enhancement of the Role of Women in the Scientific and Technological Development of the Third World. The Project may involve among other things :

* The development of an *inventory of women scientists* in various fields and countries in the Third World.

* The establishment of an *association of women scientists* active in the Third World.

* The development of concrete South-South and South-North collaboration programmes in which women and men scientists play equal roles.

Further information can be obtained from the Executive Secretary, Third World Academy of Sciences, C/o International Centre for Theoretical Physics-34100 Trieste (Itlay).

University Administrators to Meet at Maryland

The Sixth International Meeting of the Conference of Registrars and Secretaries and Conference of University Administrators of the United Kingdom has been scheduled to be held from 23 to 28 July, 1989 at the University of Maryland, College Park Campus, Center of Adult Education in the United States of America.

Several national associations such as the American Association of Collegiate Registrars and Admission Officers (AACRAO), the National Association for Foreign Students Affairs (NAFSA) are expected to join with the University of Maryland in hosting the Meeting.

Further details can be had from :

Dr. John A. Bielec,
Assistant Vice-Chancellor for Administration,
Main Administration Building
College Park,
Maryland 20742
USA.

Sports News

University Level Coaching Camps—1988-89

80 Coaching camps are allotted to various universities every year under the University Level Coaching Camps Scheme that has been in operation since 1980-81. For the present, the scheme is confined to 10 disciplines and 8 camps are organised for each discipline. The disciplines included in the scheme are Athletics (M&W), Badminton (M&W), Basketball (M&W), Football (M), Hockey (M&W), Volleyball (M&W) and Wrestling (M). The period prescribed by AIU for organising these camps is from May to September. AIU renders financial assistance to the universities for organising these camps, which are primarily aimed at nurturing university sports talent during the long summer vacation when the students tend to slacken. For the year 1988-89, these camps have been provisionally allotted to 38 university centres as per details below :

1. Athletics (M&W)

1. Allahabad, 2. Gandhiji, 3. G.N.D.U., 4. Madras, 5. Punjabi, 6. Rajasthan, 7. Shivaji, 8. Calicut.

2 Badminton (M&W)

1. Jiwaji, 2. Jodhpur, 3. Marathwada, 4. Meerut, 5. Patna, 6. Punjab Agrl., 7. Rani Durgavati, 8. Calicut.

3. Basketball (M)

1. Aligarh, 2. Berhampur, 3. Calcutta, 4. Haryana Agrl., 5. Mysore, 6. Osmania, 7. Patna, 8. Vikram.

Basketball (W)

1. Gandhiji, 2. Gujarat, 3. Kerala, 4. Kurukshetra, 5. Lucknow, 6. Sardar Patel, 7. S.N.D.T., 8. Banasthali.

5. Football

1. Aligarh, 2. Kashmir, 3. Madras, 4. North Bengal, 5. Panjab, 6. Shivaji, 7. Burdwan, 8. Calicut.

6. Hockey (M)

1. Delhi, 2. Kurukshetra, 3. Ranchi, 4. Meerut, 5. Osmania, 6. Panjab, 7. Punjab, Agrl., 8. Punjabi.

7. Hockey (W)

1. Delhi, 2. G.N.D.U., 3. Gujarat, 4. Kerala, 5. Ranchi, 6. Punjabi, 7. Panjab, 8. Banasthali.

8. Volleyball (M)

1. Aligarh, 2. Allahabad, 3. Berhampur, 4. Himachal Predesh, 5. Mangalore, 6. Mysore, 7. Rani Durgawati, 8. Rajasthan.

9. Volleyball (W)

1. Calcutta, 2. Gandhiji, 3. G.N.D.U., 4. Kerala, 5. Osmania, 6. Ranchi, 7. Sardar Patel, 8. S.N.D.T.

10. Wrestling

1. Gujarat, 2. Kurukshetra, 3. Marathwada, 4. Meerut, 5. M.D.U., Rohtak, 6. Punjab Agrl., 7. Shivaji.

GND Varsity Bags Maulana Azad Trophy

The Guru Nanak Dev University, Amritsar, has won the Coveted Maulana Abul Kalam Azad Trophy for the year 1986-87, for the ninth time in succession. The members of the Senate of the university commended the performance of the Sports Departmen for its excellent achievements.

Dr. S.S. Bal, Vice-Chancellor, informed that the Government has approved the laying of an Astro-Turf at the University and a sum of Rs. 50 lacs will be provided for the purpose. The State Government has also agreed to contribute the matching share.

News from UGC

INSAT-1B Programme of UGC

Between 11th April to 30th April, 1988 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is of one hour duration every day from 12.45 p.m. to 1.45 p.m. (Repeated from 4 p.m. to 5 p.m.) and will be available on the TV Network throughout the country. For the viewers in Delhi and surrounding areas these programmes can be seen on the second channel.

11.4.88

"Chemistry of Manmade Fibres-II"
"Light on Lasers"
"The Micro-computers"

12.4.88

"Communication II—Communication Models"
"Juvenile Justice"
"A Little More Consideration, A Little More Thought"

13.4.88

"Mediteranean Oceanography"
"Membranes"

14.4.88

"When the Artifacts Speak"
"The Origin of the Earth"

15.4.88

"The Binomial Theorem"
"Space Shuttle—The Launch"
"Star Town"

16.4.88

"Appreciation of India Dance-I"
"Simply Start"

17.4.88

No Telecast

18.4.88

"Absurd Stars : The Study of White Dwarf"
"Ionisation Radiation and Nuclic Acids"
"Transport Contours of the Future"

19.4.88

"Management of Development-Project-I"
"Raw Materials—Cocoa"
"Microlevel Planning-I"

20.4.88

"Voyage of Discovery"
"Enzymes"
"Basic Surgical Instruments"

21.4.88

"After the Earth Quake"
"Tidal Bone"
"The Nile in Egypt"

22.4.88

"Sin (Alpha+Beta)"
"Space Shuttle—In Orbit"
"Better Engines"

23.4.88

"Appreciation of Indian Dance-II"
"The Ceramic Art in Japan"

24.4.88

No Telecast

25.4.88

"The Haemoglobin Molecule"
"Introduction to Chemical Bonding"

26.4.88

"Management of Development-Project-II"
"Eutrophy and What to do About It"
"Microlevel Planning—II"

27.4.88

"Allostery"
"Reproduction in Animals"
"Laser in Medical Therapy-II"

28.4.88

"Concept of India—I
India in World Maps"
"Crust and Mantle"

29.4.88

"Functions"
"Dewatering by Wellpoint System"
"Space Shuttle—The Landing"

30.4.88

"Appreciation of Indian Dance-III"
"Robert Frost : A First Aquaintance"
"University Round-Up"

ASSOCIATION OF INDIAN UNIVERSITIES

CORRESPONDENCE COURSE IN EVALUATION METHODOLOGY & EXAMINATIONS

Applications are invited from College/University teachers for admission to Correspondence Courses in Evaluation Methodology and Examinations at Basic Level, Intermediate Level and Advanced Level/Special Professional Course. The duration of each of the three courses is six months. A personal 'Contact Programme' for three days is planned for each of the three courses. Universities/Institutions sponsoring candidates can meet the registration/course fees from out of unassigned grants by UGC.

Request for prospectus and application form accompanied by crossed Indian Postal Order for Rs. 10/- drawn in favour of the Secretary, Association of Indian Universities and a self-addressed stamped envelope (Rs. 2) should be sent to the Project Director (Exams), Association of Indian Universities, 16 Kotla Marg, New Delhi 110002. Last date for receipt of applications is extended to **25th April, 1988** for both sponsored and non-sponsored candidates.

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertations as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Alonay, Mahipat Rao. *Endomorphism ring of flat modules.* HS Gour. Dr. R.S. Singh.
2. Arjariya, Anil Kumar. *Fixed point theorems for some mappings.* HS Gour. Dr. R.K. Jain.
3. Badbude, Ramesh Kumar. *Endomorphism ring of quasi injective modules.* HS Gour. Dr. R.S. Singh.
4. Chourasia, Bharati. *Some problems on fixed point theorem.* HS Gour. Dr. K.C. Srivastava,
5. Gangele, Sudhir Kumar. *Some problems on fixed point theorems.* HS Gour. Dr. K.C. Srivastava.
6. Khan, Subhan. *Fixed point theorem.* HS Gour. Prof. P.L. Sharma.
7. Kushwaha, Ram Chandra. *Theory of relativity.* BHU. Dr. T. Singh.
8. Pandey, Rang Nath. *Optimal ordering in sparsity techniques applied to large power system networks.* BHU. Dr. O.P. Singh.
9. Pandey, Sheel Sindhu. *A study in the theory of multipliers in Banach and locally convex spaces.* HS Gour. Prof. P.L. Sharma.
10. Sinha, Vivek Kumar. *Applied functional analysis and operations research.* BHU. Dr. R.N. Mukherjee.
11. Srivastava, Renu. *Quasi flat module.* HS Gour. Dr. R.S. Singh.
12. Srivastava, Shashi Kant. *Fluid mechanics and magnetohydrodynamics.* BHU. Prof. H.L. Agrawal.
13. Tewari, Poonam. *Strongly M-projective module.* HS Gour. Dr. R.L. Singh.
14. Tewari, Sharad Kumar. *A study of continuous functions and spaces.* HS Gour. Dr. R. Prasad.

Physics

1. Agarwal, Bhushan. *Charge transport in organic semiconductors and polymers : A search for organic photo-voltaic materials.* Devi Ahilya. Dr. Brijesh Kumar.

Chemistry

1. Bhadouria, Brijesh Kumar. *Studies on phytoestrogens of Sopubia delphinifolia (Fam. Scrophulariaceae).* HS Gour. Prof. V.K. Saxena.
2. Garg, Ravindra Kumar. *Preparation and physio-chemical studies of dithiocarbamate complexes of some metals.* Delhi. Dr. B.S. Garg.
3. Gouda, Panchanana. *Synthetic studies in benzopyrone derivatives.* Delhi. Prof. S.K. Grover.
4. Hans, Naresh. *Synthetic studies in polyphenolics.* Delhi. Prof. S.K. Grover.
5. Jahromi, Mohammad Ali Farboodniay. *Medicinal chemistry : Studies and biological activities of phytochemicals.* BHU. Prof. A.B. Ray and Dr. J, P.N. Chansuria.

6. John, Liza. *Nuclear chemistry : Separation of some fission products.* BHU. Dr. R.N. Singh.

7. Mathew, Jose. *Studies on corrosion of bronze in aqueous solutions.* BHU. Dr. Ravindra Nath.

8. Misra, Suman. *Biochemistry of human filarial parasite, W. bancrofti.* BHU. Dr. (Mrs) S. Rathaur.

9. Pandey, Jagdamba Prasad. *A study of coordination compounds of some bivalent and trivalent transition metal ion with hydrazine derivatives.* BHU. Dr. K.K. Narang.

10. Pandey, Sanjay Kumar. *Synthesis and characterisation of organometallic compounds.* BHU. Dr. V.B. Pandey and Dr. V.P. Singh.

11. Rohatgi, Amit. *Chemistry of natural products.* Delhi. Dr. S.C. Jain.

12. Satapathy, Sanjukta. *Biomimetic studies of biologically active heterocycles.* Delhi. Dr. S.M.S. Chauhan.

13. Singh, Indra Mani. *Photoelectro-chemical solar cell.* BHU. Dr. Lal Bahadur.

14. Singh, Mamta. *Synthesis and stereochemical studies.* BHU. Dr. R.M. Singh.

15. Singh, Pramod Kumar. *Studies on organic conductor.* BHU. Prof. S.M. Verma.

16. Singh, Vineeta. *Radio tracer studies on adsorption.* BHU. Dr. S.P. Mishra.

Engineering & Technology

1. Amar Nath. *A.C. impedance studies on metallic corrosion.* BHU. Prof. T.K G. Namboodhiri.

2. Banerjee, Uttan Chand. *Fermentative production of rifamycin oxidase and optimization of process parameters for enzymatic-conversion of rifamycin B to Rifamycin S.* Panjab. Dr. S.C. Jain and Dr. Sunil Das.

3. Cheriyan, Achamma. *Studies on the behaviour and strength of fibre reinforced concrete structural members.* Kerala. Dr. S. Krishnan.

4. Gupta, Thummalapalli Kumara Siva Prasad. *Studies on semi-conducting chalcogenides.* BHU. Dr. Shamsuddin and Prof P. Ramachandra Rao.

5. Mishra, Awadhesh Kumar. *Some geological factors affecting physico mechanical properties of rocks.* BHU. Dr. R. Nath.

6. Sharma, Manoj Kumar. *Project management : A study of corporate strategies : Planning system for resource allocation and scheduling of resource constrained projects in multiproject organisation,* Delhi. Prof. Rajnish Prakash.

7. Saluja, S.S. *Studies of metal deformation in foraging and extrusion.* Delhi. Dr. D.P. Grover.

8. Singh, Krishna Kant Kumar. *Rock mechanics.* BHU. Prof. D.P. Singh.

9. Sreenivasa Rao, Chavakula. *Mine environmental pollution.* BHU. Prof. B.B. Dhar.

BIOLOGICAL SCIENCES

Marine Biology

1. Benny, P.J. *Studies on L-appsraginase activity in microorganisms of Ashtamudi lake.* Kerala. Dr. K. Dhenvendran.

2. Bindu, B. Kavitha. *Some studies on the effect of heavy metal pollutants on esturaine animals with particular reference to copper and zinc.* Kerala. Dr. Tresa V. Fernandez.

3. Geethamony, S. *Studies on bacterial diseases of fishes of South West Coast of Kerala.* Kerala. Dr. K. Dhevendran.

4. Joe, O. Wilfred. *Distribution of trace metals in the Ashtamudi estuary, Kerala with special reference to molluses.* Kerala. Dr. P.K. Abdul Aziz.

5. Kumar, U.G. *Studies on the estuarine bivalves of the Kerala Coast.* Kerala. Dr. N. Balakrishnan Nair.

6. Thomas, George. *Comparative studies on the ecobiology of mangrove communities along the backwater systems of Kerala.* Kerala. Dr. Tresa V. Fernandez.

Biochemistry

1. Agrawal, Rajendra Kumar. *Immunology of filariasis.* BHU, Dr. (Mrs) S. Rathaur.

2. Bhatia, Ranu. *Studies on the cultivation and genetics of biocide producing bacilli.* BHU. Dr. H.P. Pandey and Prof. R.H. Singh.

3. Durga Prasada Rao, P.V S S. *Phosphorylases and phosphatases in Lens esculenta seedlings.* BHU. Dr. (Mrs) V. Taneja.

4. Misra, Mahendra Kumar. *A biochemical study of some psychiatric disorders.* BHU. Dr. H.P. Pandey and Prof. R.H, Singh.

5. Singh, Satyendra Bahadur. *Metabolism in plants.* BHU. Dr. Om Prakash.

Botany

1. Ajith Kumar, T. *N_2 fixing cyanobacteria.* BHU. Dr. D.N. Tiwari.

2. Mishra, Surya Sankar. *Basipetal mobilization of photosynthesis from senescing cotyledons of Raphanus sativus seedling.* Sambalpur. Dr. U.C. Biswal.

3. Mishra, Sushma. *Air pollution.* BHU. Dr. (Mrs) M. Agrawal.

4. Panda, Ram Krishna. *Ecophysiological studies on the little leaf disease of Solanum melongena L.* Sambalpur. Dr. Ram Krishna Kar.

5. Patnaik. Anuradha. *Basipetal mobiiization of nitrogen assimilates from senescing cotyledons of Raphanus sativus seedlings.* Sambalpur. Dr. N.K. Choudhary.

6. Sahu, Sushil Kumar. *Physiology of inflorescence growth and development in rice varieties differing in duration of growth.* Sambalpur. Dr. P.K. Mohapatra.

Zoology

1. Arora, Chandra Bhan. *A study of the biology of Coptotenies Rhinotemitidae : Isoptera : Insecta.* Panjab. Prof. H.R. Pajni.

2. Chaurasia, Pratima. *Phasing of nucleosomes on satellite DNA of rats during aging.* BHU. Dr. M.K. Thakur.

3. Das, Abhay Kumar. *Evaluation of some Indian earthworm casts and tissues as media for mushroom growth and vermifeed for Japanese quails.* Sambalpur. Dr. M.C. Dash.

4. Hota, [illegible]rafulla Kumar. *Ecology of soil nematodes in tropical irrigated crop fields of Sambalpur, India.* Sambalpur. Dr. G.B. Pradhan.

5. Mishra, Vinod Chandra. *Some physiological and biochemical effects of braceation stress on tropical earthworms.* Sambalpur. Dr. T.V. Rao.

6. Mohandad, N.N. *Evolutionary genetics.* BHU. Prof. T. Sharma.

7. Mohanty, Ashok Kumar. *Studies on some physio ecological, biochemical and biometric aspects during development in the tasar silkworm, militea Daud.* Samalpur. Sri Ashutosh Mittra.

8. Nayak, Rama Kumar. *Pollution studies in and around Bargarh (Orissa) due to Hira Cement Factory aerial discharges.* Sambalpur. Dr. B.N. Naik.

9. Singh, Sunita. *Genetic variation in the Indian pygmy field mice.* BHU. Prof. T. Sharma.

10. Srinivasa Rao, M. *Impact of heavy metals on fish skin.* BHU. Dr. A.K. Mittal.

11. Srivastava, Sushil Kumar. *Studies on insects reproduction and development.* BHU. Prof. K.P. Srivastava.

12. Tripathi, Dinesh Kumar. *Pineal control of estrogen receptor complex in female Indian palm squirrel, F. penanti.* BHU. Dr. C. Haldar.

13. Vidhu, S. *Male hormone and DHT receptor function in accessory sex organ of male Indian palm squirrel, F. pennanti.* BHU. Dr. C. Haldar.

Agriculture

1. Kashyap, Uma. *Namatode fauna of forests, its ecology, pathogenicity and role in litter decomposition.* Sambalpur. Dr. N.K. Sharma and Dr. P.C. Mishra.

Medical Sciences

1. Basak Asim Kumar. *Studies on the pathogenesis of gallstone.* BHU. Prof. N.N. Khanna.

2. Bhaduri, Brahm Gopal. *Aushadhiyon par grah nakshatron ka prabhav ka adhyayan.* BHU. Prof. J.K. Ojha.

3. Sharma, Pramod Kumar. *Study of different chemotherapeutical agents in urogenital malignancies.* BHU. Prof. V.N.P. Tripathi.

4. Tyagi, Pankaj. *Chemistry and pharmacology of medicinal plants.* BHU. Prof. J.K. Ojha and Dr. S.K. Datta.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Bhargava, Dinesh Chandra. *Investigations into certain aspects of special functions transformations and their application.* Rajasthan. Dr. A.N. Goyal.

2. Choudhury, Khanindra Chandra. *A study of goldie rings and modules and associated concepts.* Gauhati. Dr. Binay Kumar Tamuli.

3. Dass, Jagannath. *Transient analysis of some finite simple birth-death models.* IIT Delhi. Prof. O.P. Sharma.

4. Ghosh, Bandana. *Some problems connected with differential operators and special functions.* Calcutta.

5. Mukhopadhyay, Sailesh. *Some problems on statistical mechanics (foundations) from abstract standpoints.* Calcutta.

6. Mukhopadhyay, Samares. *Some problems of elastic and piezoelectric crystals.* Calcutta.

7. Patel, Tulananda. *Some results on sequence spaces.* Sambalpur. Dr. S. Nanda and Dr. M.N. Mishra.

8. Patil, Mahadeo Raghunath. *Some 'problems in fluid mechanics.* Shivaji.

9. Premchand, S. *Semigroup of stochastic matrices.* Kerala. Dr. K.S. Subramonian Namboodiripad.

10. Shah, Madhubala Arun. *Rheology of special materials in relativity.* Shivaji. Dr. B.B. Waghmode.

11. Shahwan, Othman Said Yousef. *A study of transfinite bases in banach spaces.* Jamia. Dr. Khailil Ahmad.

Statistics

1. Deshpande, Vijay Vasantrao. *A study of certain models in demography pertaining to Ambajogai town.* Marathwada. Dr. S.G. Prabhu Ajgaonkar.

2. Harishchandra, K. *Applications of optimization and statistical techniques in design and control of queueing systems.* Bangalore. Dr. S. Subba Rao and Dr. T. Srivenkataramana.

3. Sarma, Putcha Venkata Subrahmanya. *Models and measures of fertility for regional comparisons.* Andhra.

Astronomy

1. Sarma, M. Kameswara. *Comparative synthetic light curve studies of four eclipsing binaries on ellipsoidal and roche models.* Osmania.

Physics

1. Agarwal, Vandna. *Synthesis, microstructure and mechanical properties of chromium carbide and chromium nitride films.* IIT Delhi, Prof. K.L. Chopra.

2. Baruah, Mandira. *A study on the relationship between the trace contents, uranium and boron and medicinal properties of some common medicinal plants of Assam.* Gauhati. Dr. T.D. Gowswami.

3. Chakraborti, Sibkumar. *Homogeneous spacetimes and electromagnetic fields in general relativity.* Calcutta.

4. Chakraborty, Taposh. *Laser raman studies of orientational dynamics of molecular ions and phase transformations in ammonium perchlorate single crystals.* NEHU. Dr. A.L. Verma.

5. Desai, Jayashree Shrinivas. *Some studies on Cu-In-S thin films and their use in BCPV cells.* Shivaji. Dr. S.H. Pawar.

6. Joshi, H.H. *Investigation of magnetic and electrical properties of ferrites.* Saurashtra. Dr. R.G. Kulkarni.

7. Joshi, Prabhakar. *Study of consequences of superluminal Lorentz transformations.* Kumaun. Prof. B.S. Rajput.

8. Krishna Murthy, Kolla. *Application of current algebra and peac to kaon proton interactions.* Andhra.

9. Kumbhakar, Dharmadas S. *Quark madels and gauge theories.* Calcutta,

10. Nandi, Jitendra Narayan. *Principal magnetic susceptibilities of some rare earth ions in crystals at low temperatures and a study of the crystalline electric fields.* Burdwan. Prof. Dhiraj Neogi.

11. Neogi, Aparna. *Theoretical and experimental studies on the paramagnetic behaviour of some rare earth and iron group ions in crystals.* Burdwan.

12. Padiyan, D. Pathinettam. *X-ray diffraction studies on crystalline solids.* Madurai.

13. Palchoudhari, Shanta Dhiraj. *Studies on superionic solids.* Marathwada. Dr. G.K. Bichile.

14. Pathak, M.S. *Acoustic wave interactions in solid state plasma.* Vikram. Dr. S. Ghosh.

15. Ramesh Babu, Gorge. *Experimental investigations on KC-X-Ray satellites excited by photons.* Andhra.

16. Rujh, Abdul Javed Nouvin. *Development and study of solar cells.* Devi Ahilya. Dr. R.P. Pandey.

17. Singh, Vipin Bahadur. *Molecular electronic spectroscopy of indium monobromide.* BHU. Prof. D.K. Rai.

18. Sinha, Kumar Virendra. *Computer-aided modelling and simulation of slow positron behaviour in light-gases.* Delhi.

19. Subrahmanya Swamy, Madhyannapu Leelanada. *Ultrasonic study of phase transitions in cholesteric liquid crystals.* Andhra.

20. Surendra Singh. *Electrical properties of sodium-niobate silicate glasses.* Delhi.

21. Varshney, R.K. *Temperature dependence of second, third and fourth order elastic constants of nace-structure alkali halide crystals.* Kumaun. Dr. Jai Shankar.

22. Venugopal, C. *Near perpendicular propagation of ion-cyclotron and electromagnetic waves in a loss cone plasma.* Kerala. Dr. K.S. Viswanthan.

23. Verma, Indu Bhushan. *Far infrared non-linear photoresponse in silicon-inversion layers.* Delhi.

24. Vikram Kumar, B.T. *A study of the equatorial ionospheric irregularities using V.H.F. backscatter and H.F. phase coherent radar techniques.* Kerala. Dr. P. Balarama Rao.

Chemistry

1. Ateeque Ahmad. *Isolation of new terpenoids from essential oils of potential value and elucidation of their structures.* Avadh. Dr. M.C. Nigam.

2. Bandyopadhyay, Anup Kr. *Complex equlibria of some rare earth metal ions with some chelating ligands in some mixed aqueous solvents.* Burdwan. Prof. Ajay Kr. Choudhuri.

3. Basu, Srabani. (A) *Chemical investigation of Dendrobium gibsonii, D. densiflora and Jacquinia ruscifolia (B) Studies on synthetic heterocycles.* Calcutta.

4. Batra, Rameshkumar Jeewandas. *Neutron activation analysis of geological samples using low flu 241 Am-Be neutron source.* Nagpur. Dr. A.N. Garg.

5. Bayan, Kiran Chandra. *Studies on extractive spectrophotometric determination of some metalions in micro quantities with benzyldimethylphenylammonium chloride and benzyltriethylammonium chloride.* Gauhati. Dr. Himadri Kr. Das.

6. Bhatt, V.C. *Preparation and solution properties of co-polymers.* Bhavnagar. Dr. R.S. Patel.

7. Chattopadhyay, Debabrata. *Kinetics and mechanism of oxidation of Cis-diaquo-bis-ethylenediamine cobalt (III) ion by bidentate ligands.* Burdwan. Prof. Gauri Sankar De.

8. Doshi, A.V. *Study of mesomorphism and exploration of its characteristics.* Saurashtra. Late Dr. J. M. Lohar.

9. Juneja, Ravindra Kumar. *Chemical investigation of ethno botanical medicinal plants.* Avadh. Dr J.S. Tandon.

10. Kuchekar, Shashikant Raghunath. *Extraction separation studies of some metals.* Shivaji. Dr. M.B. Chavan.

11. Kundu, Anjali. *Studies on the chemistry of plant products and oxidative phenol coupling.* Calcutta.

12. Kurian, M.J. *Studies on some complexes of trivalent manganese.* Kerala. Dr. C.P. Prabhakarn.

13. Linga Reddy, C. *Approaches to the syntheses of anthracyclinones and quassinoids.* Hyderabad. Dr. M. Nagarajan.

14. Manek, Tarulata K. *Studies in the chemistry of indandiones and related systems.* Nagpur. Dr. G. Bagavant.

15. Mangeswara Sastry, Chellapilla Venkata. *Regioselective reagents in the synthesis of 1-phenylnaphthalene lignan lactones.* Andhra.

16. Mazumdar, Sanjiv Kumar. *Physico-chemical characteristics and catalytic activity of some mixed first transition series metal oxides.* IIT Delhi. Dr. A.S. Brar.

17. Mehta, S.P.S. *Kinetics of oxidation reactions o hexacyano ferrate (III) ion.* Kumaun. Prof. R.N. Mehrotra.

18. Mitra, Susil Kumar. *On marine and plant heterocyclic compounds.* Calcutta.

19. Pant, Alka. *Study of composition of some high altitude flora.* Kumaun. Dr. C.S. Mathela.

20. Patel, Premananda. *Some physicochemical studies on ionic substitutions in the bone mineral. D.Sc.* Sambalpur. Dr. R.N. Patel.

21. Pitre, Sandhya. *Chemical investigation of some Indian medicinal plants.* HS Gour. Dr. S.K. Srivastava.

22. Prasad, Sachchida Nand. *A study of transition metal complexes of thio ligand.* Magadh.

LATEST PUBLICATIONS FROM RIS

1. **Raul Prebisch and Development Strategy, 1988.** pp. xi+295, Rs. 150, US $30.

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(Usual discount to Universities, Libraries, Organisations and Booksellers).

23. Ramavat, Bharatkumar Kalidas. *Studies on chemistry of marine algae of Saurashtra Coast.* Bhavnagar. Dr. A.V. Rao.

24. Sabiha Khatoon. *Kinetics and mechanism of some metal ion-catalysed reactions.* Utkal.

25. Sahu, Ashok Kumar. *Kinetics and mechanism of some oxidation reactions.* Berhampur. Prof. Subas C. Pati and Dr. Y Sriramulu.

26. Sarita Devi. *Studies on cyclopeptide alkaloids of some Zizyphus species.* BHU. Dr. V.B. Pandey.

27. Sarma. Tarun Chandra. *A few aspects of the chemical properties and biochemical effects of Boerhaavia diffusa Linn.* Gauhati. Dr. Pratul Goswami.

28. Sharma, Sushma. *Physico-chemical studies on metal complexes of some biologically important sequestering agents.* Rajasthan. Dr. K.K. Saxena and Dr. R.S. Saxena.

29. Shukla, Dipak Balvantrai. *Utilisation of indigenous resources in the studies of synthetic zeolites and silicates.* Bhavnagar. Dr. V.P. Pandya.

30. Singh, Ajay Pratap. *Characterization of Na+K+—Atpase in rat brain : Its role in neuronal transmission and effect of xenobiotics.* Avadh. Dr. A.K. Srivastava.

31. Singh, Chandra Bhan. *Studies on soil water and problems of salinity in the Saryu Canal Command Area of Block Sriduttganj, District Gonda.* Avadh. Dr. P.P. Singh.

32. Singh, Dibya. *Spectral studies of the complexes of organobimetallic theory and selenocyanate.* Avadh. Dr. S.P. Yadav.

33. Sridevi, G. *New heterocycles derived from 2-amino 1, 3, 4-thiadiazoles, 2-aminobenzimidazole, 3-aminoisoxazole and 3-isoxazole-carbonyl azides.* Osmania.

34. Tandon, A.K. *Phytochemicals from the high altitude flora of Kumaun Himalaya.* Kumaun. Dr. K.S. Khetwal.

35. Verma, Neeraj. *Chemical investigations of biologically active plants.* Avadh. Dr. J.S. Tandon.

36. Verma, V.S. *Investigations on some biologically important mixed ligand complexes of amino acids and peptides with Pn(ii) and Cu(ii) ions.* Vikram. Dr. M.S. Verma.

Earth Sciences

1. Adinarayana, Kopuru Venkata. *Studies on some sedimentological aspects of modern sediments of the Krishna River, India.* Andhra.

2. Chaudhri, Naveen. *Petrology and geochemistry of the granites and associated metamorphites of the Dhauladhar Range, North of Palampur, District Kangra, Himachal Pradesh, India.* Panjab,

3. Gopala Raju, Pasupati Venkata Vizia. *Studies on the chromite emplacement in parts of Eastern Ghats-India.* Andhra.

4. Jauhari, Pratima. *Environment of formation of polymetallic nodules in parts of Indian Ocean.* Kumaun. Prof. K.S. Valdiya.

5. Karmakar, Nivedita. *Lead toxicity and its biological correlates.* IIT Delhi. Dr. Sneh Anand, Dr. Girija Jayaraman and Dr. R.K. Sexena.

6. Narasimha Rao, Gandham Gouri Sankara. *Some studies on influence of climate on grasslands in Western Rajasthan.* Andhra.

7. Purushothama Reddy R. *Mineralisation and beneficiation studies of Kallur Copper deposits, Raichur District Karnataka State.* Bangalare. Dr. S.G. Phene.

Engineering & Technology

1. Anandan, C.K. *Compact broad-band microstrip antennas using parasitic elements.* CUST. Dr. K. Gopalakrishnan Nair.

2. Bandopadhyay, Soumitra. *Lossy magnetic energy storage systems for improvement of power system stability.* IIT Delhi. Prof. S.C. Tripathy and Dr. J.K. Chatterjee.

3. Basu, Sushil Kr. *Some tribological researches in machine tools and metal processing. D.Sc.* Burdwan.

4. Devarajan, G. *Non-linear filtering application to digital signal processing median filtering : Structures analysis and applications.* CUST. Dr. C.S. Sridhar and Dr. V.K. Aatre.

5. Giridhar, Godugunur. *An integrated approach to the utilization of biomass : Studies on Bougainvillea Spp and Calotropis procera (Ait) R. Br.* IIT Delhi. Prof. P. Vasudevan and Dr. R.C. Maheshwari.

6. Jayasingh, T. *Measurement and analysis of the roughness of ground surfaces and its application in monitoring wheel wear.* IIT Delhi. Dr. U.R.K. Rao and Dr. Anand Prakash.

7. Mahanti, Ambujaksha. *Aspects of Heuristic search in networks and AND/OR graphs. D.Sc.* Calcutta.

8. Mishra, Siba Prasad. *Studies on blends of poly butylene terephthalate.* IIT Delhi. Dr. B.L. Deopura.

9. Ray, Kumar Sankar. *Control laws for unknown and imprecise plant.* Calcutta.

10. Satendra Kumar. *Liquid-phase adsorption of phenols onto granular activated carbon in stirred bath reactor.* BHU. Prof. Y.D. Upadhyaya.

11. Sharma, Padam Nabh. *Optimum design of a bus body structure.* Rajasthan. Dr. K S. Shah.

12. Sitaramam, Bhamiddupalli Subrahmanya. *Syntheses of polymerisable materials from fatty oils and their use in ultra violet curable coatings.* Nagpur. Dr. M.A. Sivasamban.

13. Sudhakara Reddy, M. *Design of two-dimensional digital filters using transformation.* IIT Delhi. Prof. S.C. Dutta Roy and Prof. S.N. Hazra.

14. Swami, B.L.P. *Study of wind speeds in India and their effects on typical structures.* IIT Delhi. Dr. K. Seetharamulu and Dr. K.K. Chaudhry.

15. Venugopal Reddy, A. *Studies on the influence of metallurgical parameters on solid particle erosion of ductile materials.* BHU. Dr. G. Sundarajan and Dr. S.N. Tiwari.

16. Vinay Kumar. *Catalytic vapour phase oxidation of P-xylene.* IIT Delhi. Prof. P.D. Grover.

EDUCATION NEWS INDEX

A List of Select Articles and Editorials on Education from Newspapers received in the AIU Library during March, 1988.

EDUCATIONAL PHILOSOPHY

Lalitha Murali. Tagore and education. *The Hindu* 22 March, 1988

EDUCATIONAL POLICY & PLANNING

Anzar, Qamar Jahan. NEP : A policy with a difference. *The Hindu* 8 March, 1988.

Jha, Shashi Kumar. Education : Promises and the purse. *The Assam Tribune* 13 March, 1988.

OPERATION BLACK BOARD (Editorial). *The Indian Nation* 29 March, 1988.

EDUCATIONAL ADMINISTRATION

Amrik Singh. UGC indifferent. *The Hindustan Times* 29 March, 1988

Vedantam, Vatsala. A question of autonomy. *Deccan Herald* 20 March, 1988.

Venkata Reddy, K. Case for academicians as Vice-Chancellors. *The Hindu,* 1 March, 1988.

Vyas, Neena. AMU admission—Communalists usurp varsity court-I & II. *The Statesman* 2 & 3 March, 1988.

INNOVATIONS & REFORMS

Sivaraman, S.M. Education : A new experiment—"Freedom classes." *The Hindu* 29 March, 1988.

CURRICULUM

Jaspal Singh Politics of English. *The Tribune* 30 March, 1988.

TEACHERS & TEACHING

Ramesh, G. Society gets the teachers it deserves. *The Hindu* 15 March, 1988.

Ram Mohan, C. and others. A retrograde step in UGC's policy. *The Hindu* 1 March, 1988.

Safaya, Raghunath. Keep them on the job. *The Tribune* 10 March, 1988.

EDUCATIONAL RESEARCH

Sarker, Subbash Chandra. Scientific research. *Free Press Journal* 19 March, 1988.

Sitaram, K. Pure and applied research—A symbiosis. *The Hindu* 1 March, 1988.

EDUCATIONAL EVALUATION

Amrik Singh. Teachers—right or wrong ? *The Tribune,* 2 March, 1988.

Bhagyavathy, N E. Role of psychological testing. *The Hindu* 22 March, 1988.

Dasgupta, Sangeeta and Sen, Rupamanjari. Is the review system a farce ? *Amrita Bazar Patrika,* 8 March, 1988.

UNIVERSITY EXAMS (Editorial). *The Indian Nation* 24 March, 1988.

BOOKS & LIBRARIES

Naik, K.D. Delhi fair—a feast for book lovers. *Free Press Journal* 3 Maech, 1988.

Panwar, Sango. Book fair : Time for introspection. *The Pioneer,* 27 March, 1988.

Rao, C.N. Promotion of reading habit. *Patriot,* 30 March, 1988.

Sarkar, Subhash Chandra. The un-Indian book fairs. *Free Press Journal* 12 March, 1988.

STUDENTS & STUDENT ACTIVITIES

Stanley, Franklyn. Graduates, where do they stand ? *The Hindu* 1 March, 1988.

PHYSICAL EDUCATION

Sahi, L.P. Hockey umpires deserve a better deal. *The Telegraph* 29 March, 1988.

ELEMENTARY & SECONDARY EDUCATION

Avtar Singh. Universal elementary education. *The Assam Tribune* 11 March, 1988.

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Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) research (ii) innovation in teaching methods or (iii) production of teaching materials. About five years' experience of teaching research and/or extension provided that at least three years are as Lecturer or in an equivalent position. This condition may be relaxed in the case of candidates with outstanding record of teachin/research.

(b) Management Studies

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Explanation: For determining "good academic record" the following criteria shall be adopted :

(i) A candidate holding Ph.D. degree should possess at least a second class Master's degree or

(ii) A candidate without at Ph.D. degree should possess a high second class Master's degree and second class in the Bachelor's degree or

(iii) A candidate not possessing Ph.D. degree but possessing second class Master's degree should have obtained first class in the Bachelor's degree.

The following general conditions are applicable to all posts at 1 and 2 above.

(a) **Additional Qualifications:** Experience and proven ability in imparting education through communication media and innovations in distance teaching methods and materials.

(b) Job Requirements : Academic staff of this University will have the following responsibilities :

1. Curriculum and course development
2. Preparation of self instructional print material.
3. Preparation of and participation in the production of audio-video materials
4. Participation in contact programmes, workshops, week-end-programmes, summer institutes, face-to-face teaching etc.
5. Undertaking of research, individual, institutional sponsored etc.

In addition to pay, the posts carry all allowances as per University rules. Higher start in the prescribed scale may be given in deserving cases on the recommendation of the Selection Committee. In a few cases, the University would be able to provide accommodation Provident Fund/Pension, Gratuity, Leave Travel Concession, Medical reimbursement and Leave will be admissible as may be approved by the Board of Management. (It is anticipated that such benefits would be more or less comparable to other Central Universities).

The prescribed application forms can be had from **Registrar, Indira Gandhi National Open University, YMCA Cultural Centre, Jai Singh Road, New Delhi-110001** on a written request by post and accompanied by a self-addressed envelope (size 13 cms x 28 cms) bearing postage stamps of Re. 1.00. Completed application forms along with attested copies of degrees, experience etc. should reach the Registrar at the above address on or before **25th April, 1988**. The originals of the above degree/certificates should be produced at the time of interview.

Candidates called for interview from outside Delhi will be paid single second class railway fare to and fro by the shortest route from their place of residence/work.

Canvassing in any form by or on behalf of a cadidate will be a disqualification.

Applications received after the last date or without complete information will not be entertained.

Note : 1. It will be open to the University to consider the names of suitable candidates who may not have applied. Relaxation of any of the qulifications may be made in exceptional cases in respect of all the posts on the recommendation of the Selection Committee.

2. The University reserves the right not to fill up any of the vacancies advertised if the circumstances so warrant.

(Advt. No. 7/ADMN/87-88) **REGISTRAR**

COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH

ADVERTISEMENT No. 5/88

It is proposed to appoint two Scientists 'F' for the Central Institute of Medicinal & Aromatic Plants (CIMAP), Lucknow.

CIMAP undertakes R&D work on medicinal and aromatic plants which includes development of agrotechniques for these plants, development of agro-technology and introduction and acclimatisation of exotic species. The reseach projects of the Institute are of multi-disciplinary nature calling for interplay of agricultural sciences, botany and pharmacognosy, chemistry of natural products as well as chemical engineering.

Job requirements (Post No. 1) : The selected candidates will be expected to provide a high level leadership in R&D in Soil Science and Agronomy with special reference to agronomy of medicinal and aromatic plants. He should be able to identify, plan and coordinate research in the area of Soil Science and Agronomy with special reference to developing, improved and new methods for growing medicinal and aromatic plants under stress conditions on marginal soils, coastal soils, marshy lands, salt and acidic soil conditions, rocky area and other waste land conditions and also work as Chief Coordinator of R&D work at 5 Regional Centres located in different parts of the country. He should be able to develop a strong unit of basic as well as applied research in the area of plant nutrition, soil fertility, weed and water management.

Qualifications : High academic qualifications with first class Master's Degree and Doctor's Degree in Soil Science/Agronomy. At least ten years research experience with proven R&D ability in the area of Soil Science and Agronomy with special reference to agronomy of medicinal and aromatic plants. He should be familiar with the use of modern instruments of analysis of soils and plants. He should have proven ability to guide and coordinate agronomic research with a fairly large group of agronomists in various specialities.

Job Requirements (Post No. 2) : The selected candidate will be expected to provide a high level leadership in R&D in the area of Genetics and Plant-Breeding with special reference to medicinal and aromatic plants. He should be equipped with knowledge and skill of modern genetic engineering techniques/plant molecular biology. He will be required to assist the Director in planning and execution of projects in the area of improvement of medicinal and aromatic plants.

Qualifications : High academic qualifications with first class Master's Degree and Doctor's Degree in Botany or Agriculture with specialisation in Genetics and Plant-Breeding. At least ten years research experience with proven R&D ability in the area of Genetics and Plant-Breeding with special reference to medicinal and aromatic plants.

Salary/Conditions of Service : The scale of posts is Rs. 5100-150-5700-200-6300 plus allowances as per Central Government rules. Consultancy subject to an upper limit of Rs. 15,000 per year is permissible which is likely to be revised. This is a contractual appointment initially for a period of six years. The contract is extendable and the incumbent can also be confirmed. Free medical aid and leave travel concession are also permissible for the family as per Central Government rules. Residential accommodation will be provided as soon as the staff quarters are constructed on payment of usual rent.

Age should be preferably below 50 years, relaxable in deserving cases.

A duly constituted screening committee will decide on the number of scientists to be invited to meet the full selection committee for discussion. The decision of the Council in this behalf will be final. Applications from employees working in Government Departments, Public Sector Organizations and Govt. funded Research Agencies will be considered only if forwarded through proper channel and with a clear certificate that the applicant will be relieved within three months of receipt of the appointment order.

Those interested may kindly send in their curriculum vitae in duplicate in the form obtainable from the Joint Secretary (Admn.), Council of Scientific and Industrial Research, Rafi Marg, New Delhi-110 001 on or before **10-6-1988**. Literature about CIMAP will be available on request from this address.

Ministry of Human Resource Development
(Department of Education)
Jawaharlal Nehru Memorial Trust (U.K.) Scholarships 1988-89

Applications are invited on plain paper from Indian nationals for the award of two scholarships offered by the Jawaharlal Nehru Memorial Trust (U.K.) for advanced study/research in any of the following subject fields :

1. Material Science 2. Laser Physics 3. Opto Electronics 4. Electronics Instrumentation 5. Micro Electronics 6. Computer Science 7. Bio-Technology 8. Econometrics 9. Management 10. Mass Communication.

Tenure *:* The Scholarships are tenable for two years and may be extended by a year, where necessary.

Value (Subject to Revision) : (i) A monthly stipend (currently £ 402) for subsistance and personal expenses (including daily travel). (ii) Additional allowances for books (£. 130), Clothing (£. 141), Arrival (£. 130) and departure expenses (£. 145). (iii) Reimbursement of approved study, travel and project cost. (These will be paid directly to the training institution). (iv) There is no provision for dependents. The value of the award is adjusted annually for inflation.

Passage Cost : Cost of passage from India to U.K. and back will be provided by the Government of India.

Minimum Qualifications : (i) Uniformly brilliant academic record, preferably Ph.D. degree, intending to do Doctoral or Post-Doctoral studies in the subject related to the field chosen, or published work of equivalent merit. (ii) Candidates must produce evidence of capacity for intensive scientific investigation/research/specialised work.

Age/Marital Status : Not more than 30 years of age on 1.10.1988 (relaxable by two years in the case of Scheduled Caste/Scheduled Tribe candidates)/Unmarried/Single.

Last Date : Application on good plain paper in the prescribed format together with the relevant documents should reach the Assistant Educational Adviser, Department of Education, External Scholarship Divisions, E.S. 4 Section, Room No. 517, 'B' Wing, Shastri Bhavan, New Delhi **latest by the 29th April, 1988.**

Note : 1. Candidates who have already been abroad for study/research either on a scholarship or on their own, are eligible to apply only if they have been in India, at least for three consecutive years after their return from abroad. Applications of the candidates who are abroad will not be considered. 2. Where grades are mentioned, the candidates must indicate exact percentage of marks, failing which it would not be possible to entertain his application. 3. Candidates should have sufficient knowledge of donor country i.e. U.K. as well as of India. 4. Employed persons must send their applications through their employers with "NO OBJECTION CERTIFICATE" in time failing which their applications will be considered provisionally and they shall not be interviewed unless the same is brought. 5. Applications in the subject fields other than those specified in the advertisement will not be considered. 6 Candidates who do not possess the requisite qualifications need not apply. 7. Applications sent in advance must be accompanied with the attested copies of the certificates, certificate of age, marks sheets of the qualifying examinations and of all degrees/diplomas/certificates including Postal Order for appropriate value i.e. Rs. 5/- for General candidates and Rs. 1.25 for SC/ST candidates. 8. Equivalent foreign degrees are also acceptable in all the subject fields. 9. Papers/Books/Articles which have already been published may only be indicated in the application form. The material which has not been published, need not be mentioned. 10. Whatever experience etc. is mentioned in the application form has to be supported with documentary evidence. 11. Applications of the candidates belonging to All India Services, will be entertained only when received through their Cadre Controlling Ministries. Advance copies received from them will not be entertained.

Note : Before filling up the application, candidates are advised to go through the instructions carefully.

PROFORMA FOR APPLICATION

A recent Passport Size Photograph should be affixed here.

1. Name of the Scholarships Scheme : Jawaharlal Nehru Memorial Trust (U.K.) Scholarship Scheme 88-89.
2. (a) Subject (b) Sub-subject :
3. Name of the candidate, (in Block Letters), (with full mailing address) :
4. Date of Birth and the State to which the candidate belongs :
5. Whether a member of SC/ST or a tribal or aboriginal community ? If so, give full particulars :
6. Academic record starting from High School/Hr. Secondary (Attested/Photostat copies of Certificates to be attached) :

Name of the University/Board/Institution	Examinations passed	Year of passing	Division/Class with position, if any	Percentage of marks obtained	Subjects taken

7. Details of Professional/Practical Training and Research Experience, specifying the period and number of papers published, previous employment with name and date of employment, if any.

8. Nature of the present employment (with date of appointment, designation and the name & address of the employer).

9. Names, designations and addresses of three referees who are familiar with the work of the scholar.

N.B. Candidates called for interview will have to bring with them the original comments of all the three referees.

10. Have you been abroad ? If so, give full particulars of the country and the period. Also mention the exact date of return to India.

11. Proposed Programme of Study/research/training, specifying:—

(i) the work at present engaged in : (ii) nature and programme of study/research/training desired (iii) future plans/prospects after the proposed studies/research/training, and (iv) how are these related to the technical or economic development of India.

12. Crossed Postal Order of Rs. 5/- (Rs. 1 25 in case of SC/ST candidates) purchased after the date of our advertisement and payable to the Secretary, Ministry of Human Resource Development (Deptt. of Education), New Delhi be attached with application form.

Place : Date : (Signature of the Candidate)

davp 87/684

CLASSIFIED ADVERTISEMENTS

DEVI AHILYA VISHWAVIDYALAYA, INDORE
UNIVERSITY HOUSE, INDORE-452 001

No. Estt/III (1)/88 **Dated : 24.3.1988**

ADVERTISEMENT

Applications in the prescribed forms are invited for the following posts in the University Teaching Departments/Administrative Office so as to reach the undersigned on or before **30th April, 1988.**

S. No.	Department	Post
1.	M.Sc. Computer Science	(a) Professor-3 (b) Reader-3 (c) Lecturer -2
2.	Master of Computer Application (M.C.A.)	(a) Professor-1 (b) Reader-1 (c) Lecturer -2
3.	Business Management	(a) Professor-3 (b) Reader-5 (c) Lecturer -6
4.	Physical Education	(a) Professor-1 (b) Reader-1 (c) Lecturer -2
5.	Director, College Dev. Council	Director -1

2. The scales of pay for the above posts and present total emoluments on initial basic salary in each scale are as follows :

Post	Old U.G.C. Scale of Pay (under revision)	Emoluments on Initial Basic Pay.
Professor/ Director	Rs. 1500 60-1800-100-2000-125/2-2500/-	Rs. 4030/-Approx.
Reader	Rs. 1200-50-1300-60-1900/-	Rs. 3600/- -do-
Lecturer	Rs. 700-40-1100-50-1600/-	Rs. 2440/- -do-

3. Application forms together with details of qualifications, specialisation etc. can be obtained from the University Office on payment of Rs. 5/- in person or by sending a Crossed Indian Postal Order of Rs. 10/- payable to the Registrar, Devi Ahilya Vishwavidyalaya, Indore.

C.P. Modi
REGISTRAR (EXAMS.)

NATIONAL INSTITUTE OF HYDROLOGY
JAL VIGYAN BHAWAN
ROORKEE

Advertisement No. 5/88-NIH (Admn.)
Dated : March 29, 1988

Applications are invited for the following posts in National Institute of Hydrology (A Govt. of India Society), Roorkee from Indian Nationals satisfying qualifications and experience laid down therefor :

1. **Scientist-C** : 6 Posts in the following area :

(a) Water Resources System/Surface Water Hydrology/Drought Studies —3 Posts

(b) Ground Water Hydrology—1 Post

(c) Hydrological Investigations. —1 Post

(d) Atmospheric Land Surface Modelling. —1 Post

Scale of Pay : Rs. 3000-100-3500-125-4500.

Age : Below 40 years.

Qualifications I. : For Areas (a)

Water Resources System/Surface Water Hydrology/Drought Studies

A Bachelor's degree in Civil Engg. with minimum of 60% marks or 7.0/10.0 CPI or equivalent.

OR

Master's degree with specialisation in Water Resources/Hydraulics Engg. Hydrology, with minimum of 60% marks or 7.0/10.0 CPI or equivalent.

For Areas (b)

Ground Water Hydrology

A Bachelor's degree in Civil Engg. with minimum of 60% marks or 7.0/10.0 CPI or equivalent.

OR

Master's degree with specialisation in Water Resources/Hydraulics Engg/Hydrology with minimum of 60% marks or 7.0/10.0 CPI or equivalent.

OR

Master's degree in Science in Geology/Geophysics/Earth Science with minimum of 60% marks or 7.0/10,0 CPI or equivalent.

For Areas (c) :

Hydrological Investigations

Master's degree in Physics/Chemistry with minimum of 60% marks or 7.0/10.0 CPI or equivalent with specialisation in Nuclear Physics/Nuclear Chemistry.

For Areas (d) :

Atmospheric Land Surface Modelling

A Master's degree in Science with specialisation in Physics/Meteorology with minimum of 60% marks or 7.0/10.0 CPI or equivalent.

II. 5 year's experience of Design/Teaching research in Institutions dealing with Wather Resources, area.

Desirable

Ph.D. in Science/Engineering.

2. **Sr. Research Assistant (Programming) :** 1 Post

Scale of Pay ; Rs. 1640-60-2600-EB-75-2900.

Age : Below 30 years.

Qualifications

Essential

A Bachelor's degree in Electrical/Electronics.

OR

A Master's degree in Science in Physics/Mathematics/Electronics

OR

A Bachelor's degree in Science with Mathematics and 5 years relevant experience.

Desirable

Experience of Computer Programming.

3. Sr. Computer Operator : 1 Post

Scale of Pay : Rs. 1400-40-1600-50-2300-EB-60-2600.

Age : Below 30 years.

Qualifications : A Master's degree in Science in Physics/Electronics

OR

A diploma of 3 years duration in Electrical/Electronics with 3 years relevant experience.

OR

A Bachelor's degree in Science with Physics and Chemistry and 4 years relevant experience.

4. Personal Assistant : 6 Posts (Reserved 2 post for SC & 1 post for ST candidates).

Scale of Pay : Rs. 1400-40-1600-50-2300-EB-60-2600.

Age : Below 30 years.

Qualifications : Degrre of a recognised University or equivalent with a minimum speed of 100 w.p.m. in Shorthand and 40 w.p.m. in typewriting (English).

2. Minimum 3 years experience as Junior Stenographer in a Govt./Public Sector Undertaking/Autonomous Body.

Desirable : Experience in one of the following :

(a) Establishment & Administrative matters.

(b) Work connected with meeting conferences & coordination.

(c) Noting, drafting & case work for an analytical approach to a problem of a case dealing with rules and regulations.

5. Mechanic Grade-II : 1 Post.

Scale of Pay : Rs. 975-25-1150-EB-30-1540.

Age : Below 25 years.

Qualifications : 1. Passed Matriculation exam. with Science background.

2. Passed ITI certificate examination of 2 years duration.

OR

Passed apprenticeship course exam. of 2 years duration.

The above mentioned posts carry usual allowances as admissible under the Central Government Rules. Age will be relaxable for persons already in Service in the Institute and other Government/ Semi-Govt. / Autonomous organisations as well as candidates belonging to SC/ST community, retrenched employees of Defence services and physically handicapped persons, as per rules of the Government of India.

Age will be determined as on 15-5-1988.

Persons already employed in Govt./ Semi-Govt./Autonomous Bodies should apply through proper channel. Application not forwarded through proper channel may not be considered.

Candidates applying for more than one post should use separate application form for each post and remit fees separately for each post.

Application forms may be obtained by 30-4-1988 from Chief Administrative Officer, National Institute of Hydrology, Jal Vigyan Bhawan, Roorkee-247667 (UP) by sending a self-addressed envelope of the size 12 x 28 cms. Application forms duly completed in duplicate with copies of all testimonials alongwith an application fee in the form of Indian Postal Orders of Rs. 8/- for Sl. No. 1 & 2, and Rs. 3/- for Sl. No. 3 to 5. (SC/ST candidates are exempted from payment of fee) payable to the National Institute of Hydrology at the Roorkee University Post Office should reach the Chief Administrative Officer, National Institute of Hydrology, Jal Vigyan Bhawan, Roorkee-247667 (UP) on or before **15-5-1988.**

Job Location : Anywhere in India

NORTH EASTERN HILL UNIVERSITY

SHILLONG

Advt. No: F. 1-44/Estt-II/88/211
Dated: 18th March, 1988.

Applications are invited (on prescribed form) for the following Teaching and Non-Teaching posts in different Departments/Centres of the North-Eastern Hill University in its Campuses at Shillong(S), Kohima(K), Medzphema(M) in Nagaland; Aizawl(A) and Pachhunga University College(P) at Aizawl, Mizoram, so as to reach the REGISTRAR, North-Eastern Hill University, Shillong-793001, alongwith a crossed Indian Postal Order of Rs. 10/- (not applicable for SC/ST candi dates) payable to the North-Eastern Hill University, Shillong by **30th April, 1988.**

The specialisations are indicated at the end of each section :

1. Deptt. of Mathematics : (S) Professor- 2: Applied Mathematics/Mathematical Physics/Operational Research/ Computer Science/Numerical Analysis; Reader- 1: Pure Mathematics; Lecturer- 2 : Open.
2. Deptt. of Chemistry: (S) Lecturer -1: Desirable-Inorganic Chemistry.
3. Computer Science: (S) Professor/ Reader- 1.
4. Deptt. of Geography: (S) Reader- 3. Physical/Economic Geography, Social Geography including Cultural/Hyman/ Population Geography; Lecturer- 1: Open.
5. Deptt. of Geology: (K) Professor/ Reader- 1: Open.
6. Deptt. of Forestry: (A) Professor/ Reader- 1: Open.
7. Deptt. of Political Science : (S) Professor- 1: Open.
8. Deptt. of Economics: (S) Professor- 1: Public Economics.
9. Deptt. of Ancient Indian History & Archaeology: (K) Professor/Reader- 1: Open.
10. Deptt. of Sociology: (S) Lecturer - 1: Open.
11. Deptt. of Philosophy: (S) Professor- 1: Experience in Philosophical issues of Social & Cultural Change.
12. Deptt. of Psychology: (A) Professor- 1: Open.
13. Deptt. of Public Administration: (A) Reader- 1: Open.
14. Deptt. of Commerce: (K) Professor- 1: Open ; Professor/Reader- 2 : Open.
15. Deptt. of Management Studies: (S)/(K) Professor- 3: Open.
16. Deptt. of Social Work: (S)/(A) Professor/Reader- 3: Open.
17. Home Science: (S) Professor/ Reader- 1: Food Nutrition & Child Development/Clothing & Textile.
18. Deptt. of Khasi: (S) Lecturer- 1: Open.
19. Institute of Self-Organising System & Bio-Physics: (S) Professor/Reader- 1. General. Open Post; preferably experimental work in photon counting and millimeter wave techniques for spectroscopy for vector and scaler measurements; Lecturer- 2: Open.

"The Institute is an inter-disciplinary research centre of the University with its M.Phil/Ph.D. programme in Self Organising System open to students from various faculties. The major equipments available in the Institute for experimental research are Photo Acoustic Spectrometer OAS 400, Network Analyser HP 8510, Low Level Photon Acquisition System and Photon Counting Image Acquisition System (Hamamatsu). Persons experienced and/or interested with the research programme of the Institute will be given preference".

20. Deptt. of English: (S) Lecturer-1: Open. (K) Lecturer- 1: Open.

21. Deptt. of Education: (S) Professor- 1: Teacher Education/Social Studies Teaching/Curriculum & Evaluation/ Higher Education/Population Education.

22. School of Agricultural Sciences & Rural Development: (M) Nagaland.

(a) Animal Science: Professor- 1: Specialisation in any branch of Animal Science preferably Animal production/ Breeding/Physiology/Nutrition.

(b) Rural Dev. & Planning: Professor 1, Reader- 1, Degree in Agricultural Economics/Agriculture/Economics/ Geography/Sociology with specialisation in Regional Planning/Micro-Planning.

(c) Agricultural Extension; Reader-1, Lecturer- 1: Specialisation in any branch of Agricultural Extension Education.

(d) Soil Conservation: Reader- 1, Soil Water Conservation/Soil Water Conservation Engineering/Soil Conservation.

(e) Mathematics: Reader- 1, Lecturer- 1.

(f) Statistics: Lecturer- 1, Specialisation in any branch of Statistics/Agricultural Statistics with specialisation in design of experiment/sampling theory.

(g) Agril. Engineering: Reader- 1: Specialisation in any branch of Agricultural Engineering preferably soil & water conservation on engineering/Farm machinery.

(h) Animal Husbandry : Reader-1.

(i) Horticulture: Lecturer- 1. Pomology & Olericulture.

(j) English: Reader- 1.

23. Pachhung University College: (A) Mizoram. English: Lecturer- 1; Economics: Lecturer- 1; Botany: Lecturer—2; Psychology: Lecturer- 2: Mathematics: Lecturer- 1.

24. Director, College Development Council (S)- 1. The post-is available upto March, 1990 for the time being. Pay Scale : Rs. 1500-60-1800-100-2000-125/2-2500/- (pre-revised). Qualifications : Five years experience as a Reader or Principal of a degree college.

25. Director, Academic Staff College: (S) Pay Scale : Rs. 4500-150-5700-200-7300/- Qualifications: Qualifications and service conditions are the same as prescribed for a Professor.

26. Principal, University Law College: (A)- 1. Pay Scale : Rs. 4500-150-5700-200-7300/- Qualifications : Master's degree in Law teaching experience for a minimum period of 5 years in Law.

27. Sr. Scientific Officer (Regional Sophisticated Instrumentation Centre; (S)- 1. Pay Scale : Rs, 1200-50-1300-60-1900/- (pre-revised). Essential qualifications: (i) M.Sc./B.E. Electronics or equivalent, preferably with solid state experimental physics/electronics/instrumentation and sound background in handling and maintenance/pf. sophisticated analytical instruments. (ii) Five years experience in maintenance/installation/service of sophisticated instruments preferably electron microscope/ mass spectrometer/spectre-photometer.

28. Executive Engineer: (S)- 1. Pay Scale : Rs. 1200-50-1300-60-1900/- (pre-revised). Essential qnalifications: Degree in B E./B.Tech./B.Sc. Engineering in Civil Engineering from a recognised University/Institutian or Section 'A' and 'B' Examination of the Institute of Engineers (India) with an experience of at least 10 to 15 years in Asstt. Engineer or as SDO (PWD) and 5 to 7 years as Executive Engineer in a Govt. Department. Preference will be given to candidates having sufficient experience in the line for more than 5 years as Executive Engineer having Administrative capacity.

29. Asstt. Librarian- 3 (S), 1(A), 2(P). Pay Scale : Rs. 700-40-1100-50-1600/- (pre-revised). Essential qualifications: Master's degree in Library Science/Information Science/Documentation or an equivalent professional degree with at least fifty five percent marks or its equivalent grade plus a consistently good academic record, OR Master's degree in the Arts/Science/Commerce or equivalent degree with at least 55% marks or its equivalent grade and a Bachelor's degree in Library Science/ Information Science/Documentation or an equivalent professional degree with at least 55% marks or its equivalent grade plus a consistently good academic record.

Scale of Pay (Revised)

Professor — Rs. 4500-150-5700-200-7300/-
Reader — Rs. 3700-5700/-
Lecturer — Rs. 2200-75-2300-100-4000/-.

Essential Qualifications

1. **Professor** : An outstanding scholar with established reputation and significant contribution to the subject : OR (i) Doctorate in the subject or equivalent; (ii) Ten years teaching experience of Post Graduate classes or 15 years teaching experience including 5 years of P.G. Classes or 10 years Post-Doctoral Research experience and guidance.

2. **Reader:** (i) Doctorate in the subject or equivalent; (ii) 5 years teaching experience with at least 3 years of teaching P.G. classes or 7 years including 5 years of Honours classes or 5 years of Post Doctoral Research.

3. **Lecturer:** (i) Consistently good academic record with at least 55% marks in the Master's degree in the relevant subject or its equivalent grade. (ii) Preference will be given to candidates who have research degree like M.Phil./Ph.D.

Note : Candidates already in service should send their applications through proper channel. An advance copy may, however, be sent direct.

Applications received on plain paper, applications not in conformity with the requirement as specified in the application form and applications received after the due date will not be entertained and no correspondence will be entertained in this regard.

A person applying for more than one post should send a separate application for each post.

In addition to the pay and allowances, the University also provides a free and furnished accommodation to teachers or fixed house rent allowance in lieu thereof.

The University reserves the right to negotiate with suitable persons who may not have applied formally. The University also reserves the right to fill up or not to fill up the post or to call only selected candidates for interview. The number of posts may vary.

Application forms can be obtained from the Section Officer, Establishment-II Branch, North Eastern Hill University, Shillong-793001 personally on payment of an Indian Postal Order of Rs. 2/- or by making a written request to him / accompanied by self-addressed stamped envelope of 23 x 10 cm and a Indian Postal Order for Rs. 2/- drawn in favour of North Eastern Hill University, Shillong-793001.

Candidates who have already applied for any of the above teaching posts in response to our earlier advertisement of July, 1987, need not apply again. They may intimate their consent to be considered for the post.

D.C. Pant
REGISTRAR

BIDHAN CHANDRA KRISHI VISWAVIDYALAYA

P.O. KRISHI VISWAVIDYALAYA,
MOHANPUR, DISTRICT NADIA,
WEST BENGAL

Advertisement No. PER(T)/1/88

Applications on prescribed forms are invited for filling up the following teaching/research posts in the scale mentioned below with the benefit of D.A. and other allowances as admissible under the rules of the Viswavidyalaya :

Group—A : (1) Professor of Veterinary Clinical Medicine—1 Post. (2) Lecturer in Meat Technology—1 Post. (3) Lecturer in Agril. Extension (Research) under Regional Research Station at Coochbehar—1 Post.

Group—B : (4) Reader (Research) one each for (i) In any Branch of Agriculture, (ii) Agronomy, (iii) Plant Pathology, (iv) Plant Breeding, (v) Soil Science, (vi) Agril. Engineering, (vii) Soil & Water Conservation, (viii) Agril. Entomology, (ix) Horticulture, (x) Agril. Statistics, (xi) Agril. Economics and (xii) Animal Production and Management—12 Posts. Post at (i) is for Sekhampur Centre and the rest are for Jhargram Centre. (5) Lecturer (Research) One each for (i) Agronomy, (ii) Plant Breeding, (ii) Soil Science, (iv) Agril. Extension, (v) Animal Nutrition, (vi) Agronomy, (vii) Plant Breeding (viii) Horticulture, (ix) Agril, Extension, (x) Plant Pathology (xi) Agril. Entomology—11 Posts. Posts at (i) to (v) are for Jhargram Centre and (vi) to (xi) are for Sekhampur Centre.

Group—C : (6) Lecturer in Entomology (Acarology) (Research) under AICRP on Agril. Acarology (1 post temporary)—1 Post.

Posts at Group—B are under National Agricultural Research Project.

Scale of Pay : For Professor—Rs. 1500-60-1800-100-2000-125/2-2500/-. **For Reader (Research) :** Rs. 1200-50-1300-60-1900/-. For Lecturer/Lecturer (Research) : Rs. 700-40-1100-50-1600/-.

Age Limit as on 2.5.1988 : For Professor : Below 55 years. For Reader (Research) : Below 45 years. For Lecturer/Lecturer (Research) : Below 35 years.

Qualifications for Professors Post :

Essential : (i) A 1st or high 2nd Class Master's Degree in the relevant subject or an equivalent degree of a foreign University following a good B.V.Sc. & A.H. Degree; (ii) 10 years' experience of teaching and/or research in the relevant subject of which 5 years must be in the post of READER or equivalent position; (iii) A Doctorate Degree in the relevant subject or equivalent published work with distinguished record of research of high standard; (iv) Experience of successfully guiding research at Doctorate level. OR (i) An eminent scholar with published work of high quality actively engaged in research; (ii) 10 years' experience of teaching and/or research; (iii) Experience of successfully guiding research at Doctorate level.

Qualifications for Reader Research Posts Essential : (i) A 1st or high 2nd Class Master's Degree in relevant subject or an equivalent degree of a foreign University following a good B.Sc. (Ag.)/B.V.Sc. & A.H. where necessary; (ii) 5 Years' experience in teaching and/or research of which 3 years must be as Lecturer or in a post of equivalent rank; (iii) A Doctorate Degree in the relevant subject or equivalent published works with a good record of research.

Qualifications for the Posts of Lecturer in Meat Technology : Essential *:* (i) Consistently good academic record with 1st or high 2nd Class Master's Degree in Meat Science/Meat Hygiene/Meat Technology/Animal Products Technology or equivalent degree of a foreign University; (ii) A Doctorate Degree in the relevant subject or equivalent published papers with a good record of research

N.B. : Preference shall be be given to candidate/s having Doctorate Degree or published work of equal standard, if available.

Desirable : (i) Some teaching/research experience in an Institution of repute in the subject concerned; (ii) A good knowledge of Canning Technology as a means of preservations.

Qualifications for Lecturer in Agril. Extension (Research) : Essential : (i) A consistently good academic record with 1st or high 2nd Class Master's Degree in the relevant subject or an equivalent degree of a foreign University following good B.Sc. (Ag.) degree. (ii) Same as Lecturer's Qualifications above.

Qualifications for the Post of Lecturer in Entomology (Acarology) (Research) : Essential : (i) A consistently good academic record with 1st or high 2nd Class Master's Degree in Agril. Entomology with Specialisation in Acarology or an equivalent degree of a foreign University following a good B.Sc. (Ag.) degree: (ii) Same as Lecturer's Qualifications above.

Desirable : Ph.D. in relevant field research work of repute as evidenced by published papers in acarology.

Experience : At least two years research experience in the field.

N.B. : If a candidate possessing a Doctorate Degree or equivalent research work is not available or is not considered suitable for Lecturer Post, the person possessing consistently good academic record may be considered for appointment, on the conditions that he/she will have to attain a doctorate degree or show evidence of research work of equivalent high standard within 8 (eight) years of his/her appointment failing which he/she will not be eligible to earn future increments till he/she fulfils all these requirements.

B.Sc. (Ag.) is not essential for inservice candidates of the Viswavidyalaya.

Internal candidates of B.C.K.V. who have rendered services in the posts associated with teaching/research of the Viswavidyalaya for not less than 15 years will be eligible. Those who have persued their studies by enjoying study leave from this Viswavidyalaya are only entitled for this relaxation.

Age limit may be relaxable on the recommendations of Selection Committee in the case of candidate/s otherwise qualified. Higher pay in the scale may be granted as per Rules of the Viswavidyalaya on the basis of qualifications, experiences and present emoluments.

The Viswavidyalaya reserves the right not to fill up the advertised post/s.

Applications must be submitted in the prescribed proforma obtainable from the Office of the undersigned, Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, Nadia, West Bengal by remitting CROSSED INDIAN POSTAL ORDER for Rs. 8-00 (Eight) in favour of the Bidhan Chandra Krishi Viswavidyalaya between 11.00 a.m. and 3.00 p.m. on weekdays.

Application form may also be obtained by post by sending self-addressed envelope stamped for Rs. 0.70 (seventy paisa) and POSTAL ORDER FOR Rs. 8.00 (eight).

Closing Date : Issue of application form : 29th April 1988. Receipt of completed application form : 2.5.1988.

Applications completed in all respect should be submitted to the undersigned, B.C.K.V., Mohanpur by **2.5.1988.** in an envelope superscribing the post applied for.

Person/s already in employment should apply through proper channel.

Candidates called for interview will have to appear at their own cost.

REGISTRAR

UNIVERSITY OF CALCUTTA

Senate House, Calcutta-73.

CORRIGENDUM

Advertisement No. EST/1A/88.

Regarding Notification No. Est/1/88 dated 8th March, 1988, the three posts of Professors in the New Cells of Biophysics, Molecular Biology and Microbiology and Genetics in Group—B Sl. No. 13, be read as 'in the Departments of Biophysics, Molecular Biology and Genetics' in stead of the Cells.

S.N. Ghosh
REGISTRAR

ANDHRA PRADSH AGRICULTURAL UNIVERSITY

ADMINISTRATIVE OFFICE :
RAJENDRANAGAR
HYDERABAD—500030

Advertisement No 2/RC/88
Dated : 28-3-88

1. Applications in the prescribed form together with a Registration fee of Rs. 10/- are invited for the undermentioned posts in Andhra Pradesh Agricultural University, Rajendranagar, so as to reach the Registrar, A.P. Agricultural University, Administrative Office, Rajendranagar, Hyderabad-500030 on or before 25-4-1988.

(i) **Dean, Faculty of Home Science**
(ii) **Dean Faculty of Veterinary Science**

2. **Existing Scale of Pay (U.G.C.) :** Rs, 1500-60-1800-100-2000-125/2-2500 & Special Pay of Rs. 250/- in addition to usual allowances admissible as per University rules.

3. **Qualifications : (i) Dean, Faculty of Home Science**

Essential

(a) Ph.D., or equivalent degree in any branch of Home Science.

(b) A minimum of twenty years of experience in teaching/research/extension in Home Science, out of which, atleast five years should be as Professor or equivalent rank.

(c) Significant professional achievements in her field of specialisation/activity.

Desirable

(a) A Bachelor's degree in Home Science.

(b) Experience of teaching Undergraduate and Post-graduate students in the course-credit system.

(c) Knowledge and experience of organising and administering educational programmes.

(iii) Dean, Faculty of Veterinary Science

Essential

(a) A Bachelor's degree in Veterinary Science.

(b) Ph.D. or equivalent degree in any branch of Veterinary Science.

(c) A minimum of twenty years of experience in teaching/research/extension in Veterinary out of which at least seven years should be as Professor/Senior Scientist or equivalent rank.

(d) Significant professional achievements in his field of specialisation/activity.

Desirable

(a) Experience of teaching Undergraduate and Post-graduate students in the course-credit system.

(b) Knowledge and experience of organising and administering educational programmes.

Note : The period of experience prescribed for both the posts will be reckoned as on the last date fixed for the receipt of applications.

4. The term of appointment of both the posts shall be three years.

5. Applicants other than those in the service of Andhra Pradesh Agicultural University should send the applications through their employers so as to reach the University on or before the last date.

Note : The inservice teachers of A.P.A.U. may send applications direct to the Registrar.

6. Application forms can be had from the Registrar, Andhra Pradesh Agricultural University, Administrative Office, Rajendranagar, Hyderabad-500030 on remitting Rs. 10/- in person or through a crossed D.D. drawn from any nationalised Bank in favour of the Comptroller, Andhra Pradesh Agricultural University, Rajendranagar drawn on State Bank of Hyderabad, Rajendranagar Branch for obtaining it by post. A self-addressed and stamped Rs. 2-50 cover of the size of 35 cm×15 cm should be sent with a requisition for application form.

Applicants, when called, should appear before the Selection Committee for interview at their own cost.

K.M. Azam
REGISTRAR

MANIPUR UNIVERSITY

CANCHIPUR : IMPHAL

Advertisement No. 4/88

Dated the 25th March, 1988

Applications are invited for one post of Deputy Registrar (Reserved for SC/ST candidates) in the scale of pay of Rs. 3000-100-2500-125-5000/- p.m. plus admissible allowances.

Essential Qualifications

(i) At least a Bachelor's Degree from any statutory Indian or Foreign University, and good academic background. (ii) At least 10 years' administrative experience of which not less than 5 years' should be in a Supervisory capacity, not below the rank of Assistant Registrar or equivalent post in a University or a well-established educational institution. For departmental candidates relaxation of 2 years in experience may be given.

Desirable : (a) Post-graduate qualification; (b) Adequate experience in handling agenda, minutes and procedure of meetings development work including formulation and implementation of development project / programmes, recruitment and establishment matters.

OR

(i) 8 years' experience as Lecturer in a College or a University with experience in educational administration; (ii) Comparable qualification in research establishments and other institutions of higher education.

Candidates invited for interview will be given second class railway fare by the shortest route on production of travel documents.

Applications on plain paper (in duplicate) along with attested copies of Certificates in support of qualifications and experience showing candidate's name, date of birth, mailing & permanent address, father's name, academic and professional attainments, administrative/teaching/research experience, field of specialization, publications (to be enclosed with reprints), Seminars/Conferences attended, details of visits to foreign countries and assessment reports from at least two persons well acquainted with the candidate's professional work should reach the Registrar, Manipur University, Imphal-795003 on or before the **25th April, 1988.**

Applications received late or incomplete in any respect may not be entertained. Persons already in service must apply through their employers so as to reach this office on or before the last date fixed. No candidate will be considered for appointment unless he/she produces a 'No Objection Certificate' from his/her employer at the time of interview.

Th. Joychandra Singh
REGISTRAR

INDIAN SCHOOL OF MINES

DHANBAD-826004

No. 614001/88 **Dated : 5-3-1988**

ADMISSION NOTICE—M. TECH./DISM. PROGRAMMES

Applications are invited for admission to the following Post-Graduate programmes commencing on June 20, 1988 at ISM, a deemed University under the UGC Act.

A. M. TECH./DISM IN ENGINEERING DISCIPLINES

M. Tech. programmes in engineering subjects at ISM, in common with other Universities, are of 3 semester duration. A unique feature at ISM, however, is the award of a postgraduate DIPLOMA OF INDIAN SCHOOL OF MINES (DISM) on completion of the first two semesters. The third semester (for project work) leading to award of M. Tech. can be pursued either in the institution or on job at respective places of work of the candidates.

Discipline	Eligibility Qualification : B. Tech. or equivalent degree in
(1) Drilling Engineering. (6 seats)	—Mech/Prod/Min Engg. or Mining Machinery.
(2) Fuel Engineering. (6 seats)	—Fuel/Chem/Met/Mech/Min Engg.
(3) Maintenance Engg. & Tribology (6 seats)	—Mech/Prod/Min Engg. or Mining Machinery.
(4) Mineral Engineering. (15 seats)	—Mech/Chem/Met/Min. Engg. OR M.Sc. in Mineral processing or equivalent/M.Sc. Applied Geology or equivalent with mathematics at B.Sc. level.
(5) Mining Engineering (6 seats) with specialisation in (1) Mine Planning & Design. (2) Rock Mechanics. (3) Mine Environment.	—Mining Engg.
(6) (*) Opencast Mining (10 seats)	—(A) Min Engg., Open Cast Mining or Mining Machinery. OR —(B) Civil/Elec/Mech Engg/with at least one year approved experience in opencast mines.

(*) For OCM programme, there will be an additional bridge semester for candidates with qualifications in Civil/Elec/Mech Engg. Graduates of Mining Engineering, Opencast Mining and Mining Machinery may have to undergo some training in Open Cast mines during this period, if required. One year's experience in open cast mines will be necessary for all applicants other than those with Min. Engg. Open Cast Mining & Min. Mech. background.

(7) (**) Longwall Mine Mechanisation—Mech/Elec/Min Mach/Mining. (15 seats).

(**) Fresh graduates will have to undergo a pre semester make up course before being admitted to regular 3 semester M. Tech. course.

(8) Industrial Engg. and Management (15 seats)	—Any branch of Engineering with at least six months experience in industry.
(9) (***) Petroleum Engg.	—Chemical Engg/Mechanical Engg/Petroleum Engg.

(***) The candidates with B. Tech. degree in Chemical Engg. and Mechanical Engg. shall have to undergo a make-up semester course before being admitted to regular 3-semester M, Tech. course.

(B) M. TECH. IN EARTH SCIENCE DISCIPLINES

M. Tech. programmes in Earth Science disciplines at ISM are of 2-semester duration. There are six seats in each programme.

Discipline	Eligibility Qualification
(1) Geophysical Instrumentation & Techniques.	—M. Sc. Tech, or equivalent in Applied Geophysics.
(2) Mining Geophysics	—M. Sc. Tech. or equivalent in Applied Geophysics.
(3) Mineral Exploration	—(a) M. Sc. Tech, or equivalent degree in Applied Geology. OR (b) M. Sc. degree in Geology with two years field experience.
(4) Engineering Geology	—(a) and (b) as above OR B. Tech. or equivalent degree in Civil Engineering.
(5) Petroleum Exploration	—M. Sc. Tech. or equivalent degree in App. Geology/App. Geophysics.

NOTE : Candidates applying for programme B (3) or (4) should also have passed in Physics or Mathematics at the graduate level.

2. Admission to M. Tech. Programmes :

Admissions to above programmes (A & B) shall be made from amongst those candidates who have passed GATE examination with valid scores.

3. General Information

3.1 15% of seats are reserved for Scheduled Caste and 7½% for Scheduled Tribe candidates, if available; otherwise they will be treated as unreserved.

3.2 Other things being equal, preference shall be given to sponsored candidates, sponsorship in this context meaning retention of lien on post and grant of suitable allowance by the concerned organisation. Applications of these candidates should carry endorsement to this effect from the employer.

3.3 Candidates called for appearing in the Viva-Voce (likely to be conducted in the 1st week of June 1988 at ISM, Dhanbad) will have to do so at their own cost. TA/DA is not admissible.

3.4 **Scholarship :** Non - sponsored candidates admitted to the above programmes will be eligible for a scholarship of Rs. 1000/- p.m. for a period not exceeding the duration of the programme.

3.5 Courses where the number of students admitted falls down below four may not be run.

4. **How to apply :** Applications on prescribed forms should reach the undersigned, by **30th April, 1988** at the latest. The forms are obtainable by sending a crossed postal order for a sum of Rs. Ten only (made payable to the Registrar, Indian School of Mines, Dhanbad-826004 at ISM Post Office, Dhanbad) along with a self-addressed unstamped envelope of size 23 × 10 cm. The envelopes containing request for form must be superscribed "Request for Admission Form".

REGISTRAR

SOUTH GUJARAT UNIVERSITY
SURAT

COMPUTER CENTRE

Applications are invited in prescribed form (in eight copies) for the following teaching posts at the Computer Centre of the University :

(1) One Reader in Computer Science : Ph.D./M.Tech. in Computer Science or Ph.D. in Mathematics/Physics/Statistics with additional qualification of P.G. level in Computer Science applications, with five years work experience.

(2) Two Lecturers in Computer Science : Ph.D. or P.G. Degree in Computer Science/Computer Application or Master's Degree in Mathematics/Physics/Statistics with P.G. Diploma in Computer Science/Computer Application of a University or deemed university.

Note : The post of Lecturers are reserved for Scheduled Caste/Tribe/Other Backward Class (Baxi Panch) of Gujarat State and only the candidates belonging to these classes need apply.

Pay Scale for the above Posts are as under :

(1) **Reader :** Rs. 1200-50-1300-60-1600-Assessment-60-1900.

(2) **Lecturer :** Rs. 700-40-1100-50-1300-Assessment-50-1600.

In addition to pay, the permanent teachers of the University Departments are entitled to draw Dearness Allowances, House Rent Allowance and other benefits like Pension-cum-Gratuity, Leave Travel Concession and Medical benefits.

Candidates belonging to Scheduled Castes/Scheduled Tribe and Backward Class should clearly indicate in their application the caste to which they belong and attach necessary certificate alongwith their applications.

Information about qualifications and special field in which the appointment on each post is to be made, will be supplied with prescribed application forms which can be had from the undersigned on payment of Rs. 7.00 in cash or by Postal Order alongwith self-addressed envelope of 22 cm x 13 cm. size with postal stamps worth Rs. 3.10 ps. affixed thereon. Canvassing in any form will disqualify the candidate.

The last date for receipt of application is 25-4 1988.

G.A. Desai
REGISTRAR

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University News

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टि महाराष्ट्र विद्यापीठ-प
१९८७

on'ble Shri Shankarrao Chavan, Chief Minister of Maharashtra, delivering the convocation address at the annual convocatio of the Tilak Maharashtra Vidyapeeth, Pune. Seated on his right and left are Shri Jayantrao Tilak, Chairman, Vidhan Parishad, Maharashtra and Prof. S.V. Kogekar, Vice-Chancellor of the Vidyapeeth respectively.

MINISTRY OF HUMAN RESOURCE DEVELOPMENT

(Department of Education)

TURKISH GOVERNMENT SCHOLARSHIPS, 1988-89

Applications are invited on plain paper from Indian nationals for the award of 4 Research Scholarships (Eight months' duration each, starting from 1.10.1988) offered by the Government of Turkey for 1988-89 in the following subject-fields :

1. Architecture ; 2. Geological Engineering; 3. Restoration and Preservation of Historical Monuments.

AGE : Must be less than 40 years on 1.10.1988. Age relaxable upto 2 years in upper age for Scheduled Caste/Scheduled Tribe candidates.

VALUE : 1,10,000/- Turkish Liras per month. This amount has been fixed taking into consideration only a single person's requirements.

QUALIFICATIONS : (1) Architecture : Bachelor's degree in Architecture. (2) Geological Engineering : Master's degree in Applied Geology or in allied field. (3) Restoration & Preservation of Historical Monuments : Bachelor's degree in Architecture with 4 years experience in conservation of historical monuments.

ESSENTIAL EXPERIENCE : (For courses 1 and 2 above) At least two consecutive years' study/teaching/research/practical experience as on 1.10.1988 in the subject-field selected after obtaining the prescribed qualifications. Successful completion of M.Phil./Pre-Ph.D. course would be considered towards experience.

PASSAGE COST : Travel expenses from India to Turkey and back will be borne by the candidate or his/her sponsors/employers. Subject to availability of funds, the passage cost may be met by the Government of India, provided the candidate is eligible under the rules.

NOTE : 1. Only candidates who secured 60% marks or more at the prescribed qualification level are eligible. Where grades are mentioned, candidates must indicate the conversion formula adopted by the University/Institution. 2. Equivalent foreign degrees will be considered 3. Candidates who have already been abroad for study/training/specialisation/research either on a scholarship or on their own, are eligible to apply only if they have been in India for at least three consecutive years after return from abroad. Applications of candidates who are abroad will not be considered. 4. Upper age limit and experience can be relaxed by not more than three months at the discretion of Selection Committee in the case of brilliant candidates. 5. Candidates should have good command of English or French or Turkish language. Knowledge of Turkish language will be given preference. 6. Candidates would have sufficient geographical knowledge of India and the donor country i.e. Turkey. 7. Applications of candidates who are abroad will not be considered. 8. Employed persons must send their applications through their employers with "NO OBJECTION CERTIFICATE" in time, failing which applications will not be considered. 9. Applications in subject-field other than those specified above will not be considered. 10. Candidates who do not possess the requisite qualifications need not apply. 11. Applications which do not contain the Postal Order will not be considered.

Candidates should apply for the above scholarship on a plain paper with a recent passport size photograph, furnishing the following details/particulars to the **Secretary, Ministry of Human Resource Development (Department of Education), External Scholarships Division, ES-3 Section, Room No. 516, B-Wing, Shastri Bhavan, New Delhi-110 001 by 6th May, 1988.**

The applications received late will not be entertained.

FORMAT OF APPLICATION

1. Name of the Scholarships Scheme :
2. (a) Subject (b) Sub-subject :
3. Name of the candidate (in Block Letters) with full mailing address :
4. Date of Birth and the State to which the candidate belongs :
5. Whether a member of SC/ST or a tribal or aboriginal community ? If so, give full particulars :
6. Academic record starting from High School/Higher Secondary ;

Name of the University/Board/Institution	Examination(s) passed	Year of Passing	Division/Class with position, if any*	% of marks obtained & Position, if any.	Subjects taken

*In case no Division class is awarded and only grading is done, the conversion formula adopted may be mentioned.

7. Details of Professional/Practical Training and Research Experience, specifying the period and number of papers published, previous employment with name and date of employment, if any.

8. Nature of the present employment with date of appointment, designation and the name & address of the employers.

9. Have you been abroad ? If so, give full particulars of the country and the period. Also mention the year and month of return to India.

10. Proposed programme of study/research/training, specifying:

(i) the work at present engaged in ; (ii) nature and programme of study/research desired. (iii) future plans/prospects after the proposed studies/research; and (iv) how are these related to the technical or economical development of India?

11. No. and Date of crossed Postal Order of Rs. 5/- (Rs. 1.25 in case of SC/ST candidates etc.) attached with the form.

NOTE: Employed persons must send their application fully sponsored by the Employers. However, advance applications will be considered provisionally pending sponsorship by employers.

Place : Date : (Signature of the Candidate)

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UNIT
29 APR 1988

UNIVERSITY
NEWS

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Editor :
SUTINDER SINGH

Excellence & Relevance in Education

S. Abdul Kareem*

The major thrust areas of higher education within the parameters of the New Education Policy are : equity, excellence with relevance and efficiency. As concepts, they have at their basis the philosophical views of the emergent society with perceptions and priorities felt by the people. Equity derives its strength from the premise of social justice. In our national perception education is essentially for all (NPE : 2.1). The present paper seeks to examine only the second thrust area, viz. excellence with relevance, broadening the spectrum within the ambit of higher education.

Excellence as a goal is laudable in itself. Being a quality trait, it is not easy to identify it and once identified, it is a task by itself to quantify a quality. If excellence in a particular educational activity like reading at the primary stage is to be quantified, one can assess the measure of excellence by evaluating the performance. The same may be possible in respect of writing or speaking. But to quantify the totality of a teaching process in its evaluation is an elusive affair. The shift from an individual to the institutional level necessitates the strengthening of academic supporting sub-systems, the lack of which stigmatizes the unit as mediocre and substandard.

Equity and excellence are more often irreconcilable. They tend to pull each other in opposite direction. Equality among people, of opportunity and access presupposes a dilution which otherwise is a quality norm confined to the few. It is generally held that if an asset or facility is made accessible to all without any restrictions, its quality would suffer.

Dr. F.R. Leavis in his essay 'Mass Civilization and Minority Culture' did establish convincingly that culture is a minority creation. Medieval Italy had a few families like that of De Medici which were centres of excellence and seats of culture. Hence it is inevitable that excellence should create around itself an aura of elitism and respectability. Ben Jonson during the Elizabethan times sang :

> *"In small proportions we just beauties see;*
> *And in short measures life may perfect be."*

Prof. Schumacher sets the modern stamp of finality when he says : Small is Beautiful.

In education, excellence may not always be a function of numbers only. It is possible there may be small colleges which apart from being non-viable, may have no excellence whatsoever in them while large colleges, despite their overflowing numbers, may yet deserve the reputation of being centres of excellence. Hence it is possible to achieve excellence in education with proper educational inputs which, among others, may be identified as teachers, infrastructural facilities, content of courses, teaching learning processes and the students. In respect of teachers to a great extent and in students to some, quality means the level of

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**Principal, Anjuman-e-Islam's Nehru Arts, Science & Commerce College, Hubli-580 020.*

capabilities and potentialities in terms of knowledge, skills, aptitudes and values which have as much a contextual relevance as universal which enables people to aim high and attain peak performance. Excellence as a value has no fixed upper limit. The attainment of one set of goals and ideals pushes it to a higher plane necessitating human endeavour ad-infinitum. This love for excellence is an essentially human trait which knows no satiety.

Higher education gives unto itself lofty goals to socialize, sanitize, sensitize men. In fine, it is called upon to prepare men for work and life. The institutions will be expected to think through their goals, get them accepted and be accountable for them. They must develop the whole person. Learning is not the exclusive province of the mind or the intellect. It engages the whole person, the hand, the eye, the muscle and the brain. Learning is a continuous biological process that begins at conception and ends only at death. Hence it is a continuum. One must continue it life-long. If the institution responds to these goals as a collectivity in a positive way, it bids fair to achieve excellence.

With as many as 150 Universities and 5000 Colleges, 7 Central Universities, 5 IITs, IIMs, about 20 Regional Colleges of Engineering and a dozen Deemed to be Universities, higher education is as vast and varied as it is uneven. There is the need to put this massive mansion in order. The degree of obsolescence being high, there is the dire need to update the outdated data within its portals. New blood should flow imparting vigour and dynamism as never before. The requisite infrastructure is sought to be developed by strengthening libraries, laboratories, students' amenities by phased funding on settled guidelines. Most of the Colleges are already equipped with Colour TVs and Computers to streamline administration and strengthen teaching. New Management Systems with definite organisational structures, roles and responsibilities are being worked out to eliminate the accumulated deficiencies, plan-wise till about the 9th plan period coinciding with the closure of the 20th Century.

Autonomous Colleges

Of late academic excellence is sought to be injected through autonomus Colleges. The country has so far only 21 autonomous Colleges and the UGC has an ambitious plan of conferring autonomy on 500 Colleges in the Sevent Plan period. The affiliating system, being a hang over of the colonial past, is purported to have come in the way of the progress and development in universities and is sought to be dispensed with the grant of a measure of autonomy. Autonomous colleges will be free to devise their own academic calendar of admissions, terms of sessions and vacations. They will be free to formulate their own syllabus and conduct their own teaching and examination and have the degrees awarded by the parent university with the name of the College recorded in the diploma. With an Academic Council and Board of Studies of their own with duly constituted Governing Bodies, the Colleges with qualified teachers can undertake experimentation and innovation in uncharted fields. The UGC will fund these schemes in a big way for the plan period.

It is a moot point how far this idea catches the imagination of educational administrators. Many an intending management has visited these academic shrines, mostly in Tamil Nadu to have a first hand appraisal of their functioning. The freedom that flows from autonomy may foster creativity and innovation. But there is a fear of adventurism and experimentation with the outcome almost uncertain. The institution to go autonomous should have their credibility well-established which otherwise may degenerate into unrestricted licence unacceptable in the society. The abrupt stopping of funding after the five years period may cause greater dislocation before the state government could take over the financial burden in its fold. The existence of quality and non-quality institutions may give rise to a new academic casteism.

Restructuring of Courses

Yet another major premise of excellence is the need for restructuring of courses (R.O.C.) stagnating for decades. In view of the growing demand of specialisation, it is felt proper to bring in the necessary measure of relevance, application orientation, flexibility and diversification and emerging employment opportunities, including self-employment. A standing committee was set up to finalise the guidelines which are specified below :

(a) Foundation courses taking 20-25 per cent of the time to create awareness like history of the freedom struggle in India, Science in everyday life, Gandhian Thought.

(b) Core programme with in-depth study covering 75-80 per cent of the time involving the main disciplines.

(c) Applied studies/Project work/Field studies are to be incorporated as an integral part of the core programme.

(d) Extension work is be integrated with the curricular to make courses relevant to the needs of the society.

The combination of the core curricular could be asunder :

(i) Physics, Mathematics & Instrumentation/Communication/Metallurgy/Computer Sciences.
(ii) Botany, Chemistry+Horticulture/Pharmacy/Fertilizers/Food Technology.
(iii) Economics, Commerce + Marketing / Rural Banking/ Cooperative Management.
(iv) Economics, Political Science+Panchayati Raj.

The University Grants Commission has come in a big way to support such programmes by way of grants on non-lapsable nature for 5 years.

Restructuring of courses as a step towards achieving academic excellence necessarily brings in the component of social relevance. The higher educational system should respond to the important aspect of human resource development by accepting the responsibility of providing trained manpower in skills to go into all the sectors of economy. Curricular contents prescribed with relevance to the social needs should also explore relevance in relation to what the student has already learnt earlier at the school so much so that relevance establishes linkages among School-learning, College-learning and social needs. The basic purpose of restructured courses is to introduce the student to applied aspects and to enable him to use his knowledge at least, to become para-professional with middle level technician functions. The third subject of the restructured course is oriented towards field/practical work thereby integrating the learning process by having it exposed to the field of work.

Extension

In addition to teaching (now termed teaching-learning process) and research, university education has developed a new dimension of extension. Extension is not to be viewed as a welfare activity for the deprived social groups but as a process of interaction with the society leading to valuable learning experience and as a means of making higher education relevant to the needs of the society and oriented towards a solution of existing problems. The university system should absorb the concept of "extension culture" as its integral component and a fair measure of time be allocated for the off-campus extension work through NSS, NCC, NAEP and PEC. This new dimension of extension has made possible yet another area of relevance-continuing education. Formal education has generally proved to be segregating and fragmentative rather than harmonising and integrative. Continuing education is not merely furthering or refreshing information or skills but a process of achieving integration of knowledge with life or a process of rectifying the imbalances created by formal education in individual as well as community life. T S. Eliot articulated these imbalances so vividly in the following lines :

"Where is the life, we have lost in living
Where is the wisdom, we have lost in knowledge
Where is the knowledge, we have lost in information."

The basic philosophy of continuing education is

UNIVERSITY NEWS

A Weekly Chronicle of Higher Education

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that it is a life-centred and life long process.

Passion for Change

Academic work gets the stigma of irrelevance when it beats a retreat to the rarefied pursuits of theoretical abstractions when the hour demands that it should enter the arena of praxis. Higher learning becomes relevant when research or teaching will yield insight into the nature of social reality that surround us. Members of the academia cannot purify the moral climate by pontificating in the classroom. They must enter the arena of action and get themselves posted on fronts as instruments of change. They must outgrow the ivory tower attitude. It is not enough to merely understand the world. One must develop a passion for changing it. The dichotomy between fundamental and applied disciplines has been more artificial. With nearly three decades of developmental planning, poverty stares us in the eye everywhere. Relevance is more often an expression of broad societal concern and education must deal with not merely subject-oriented disciplines but problem-oriented issues. The Gandhian system of education had emphasised the joy and excitement of doing things while learning. As Prof. A.N. Whitehead said, "In the process of learning, there should be present, in some sense or another, a subordinate activity of application. In fact, the applications are part of the knowledge For, every meaning of things is wrapped up in relationships beyond themselves. Thus unapplied knowledge is knowledge shorn of its meaning." We can ill afford to ignore ideals which Nehru placed before the university community when he said, "A University stands for humanism, for tolerance, for reason, for progress, for the adventure of ideas and for the search for truth. It stands for the onward march of the human races towards our higher objectives. If the universities discharge their duties adequately, then it is well with the people. But if the temple of learning itself becomes a home of narrow bigotry and petty objectives, how then will the nation progress or a person grow in stature?"

In the entire system of education, the role of teacher is pre-eminent. In fact, he is the live-wire of the system though some deadwood can easily be discounted. The Education Commission (1966) had outlined, 'Of all the different factors which influence the quality of education and its contribution to national development, the quality. competence and character of teachers are undoubtedly the most significant.' Dissemination of knowledge through teaching, creation of new knowledge through research, forging links between the growth of knowledge and its application are his major areas of preoccupation What contributes to avenues of excellence in a teacher is his commitment to his profession through his personal example and practice of values like honesty integrity sense of responsibility and compassion. It is imperative that the teachers have a self-imposed code of ethics to guide them in their professional competence which eventually may foster excellence. It is equally necessary that they are made a part and parce of institution planning for effective implementation o the educational priorities. 'Schedules of inspectio must give place to schemes of introspection' in th words of Prof. V.V. John. With self-regulation shoul go self-evaluation, peer-evaluation and peer-disappro bation.

Excellent teachers relate their teaching with wha has already been learnt by the students. Academi Staff Colleges mooted by the new education policy ar designed to cater to teacher orientation programmes More than anything, the teachers must have a positiv attitude to identify the aptitudes of the students so a to help them grow and prosper. Reviewing the boo 'Three Score and Ten' by Asok Mitra, Prof. Amri Singh wrote (**Deccan Herald** Oct. 18, 1987) :

> "The core of this process of one lamp lightin another comes from the fact that teaching, i essence, is an act of joy. It is not a chore impose upon someone; on the contrary, it is a liberatin and creative act. It releases something withi the teacher and gives him the feeling th nothing is more rewarding than to be able t give".

Looking at what is happening around, he lament that the desire to give has died while the desire t grab has become a burning passion. With Aso Mitra, Amrik Singh fully concurs with followi statement "I have rejoiced when my pupils excelle me". Only the culture of excellence can foster th attitude of magnanimity.

Island of Excellence

In the oceans of mediocrity, there have been isla of excellence like the IITs, the IIMs and the Nation Laboratories. There is symbiotic-relationship b ween higher education and research, each help susta the other; otherwise each will lack in dynamism a will eventually grow dull. The vital component

(*Continued on page 9*)

The Humanistic and Scientific Values in the Pursuit of Science

J.N. Kapur*

Prof. J. N. Kapur expressed his anguish at the erosion of basic humanistic and scientific values in science education and research while delivering the Eighth J. P. Chatterjee Award Lecture at the 75th Indian Science Congress (Platinum Jubilee) Session at University of Poona, Pune recently. He opined that it was still possible to realise the goal of 'divinity of man' suggested by Dr. Chatterjee if we put our 'scientific house' in order. He reiterated Dr. Chatterjee's plea for the fusion of scientific and humanistic cultures and said that unless education and research in science was pursued in the true spirit of science, growth in science will not mean growth in wisdom and character. We are pleased to publish excerpts of this highly inspiring address for the benefit of our readers.

Some Basic Theses

● Every scientist has to be a true humanist and a great lover of mankind. He should have a great vision for mankind, in which there will be no poverty, no hunger, no disease of the mind or body, no suffering, no greed, no hatred, no violence; in which there will be universal love and fellow feeling and in which everybody will be continuously learning from womb to tomb and will be enjoying the learning. His love for Science should also be the result of his love for humanity.

● Every scientist shall also be a true scientist. He should imbibe all values of science like originality, creativity, innovation, impartiality, fairness, integrity, objectivity, excitement and passion for new knowledge, love for truth and so on, not only for his scientific pursuits but for all his actions.

● If a scientist tries to follow these values in the scientific work, but is otherwise superstitious, unfair, dishonest in his other actions, this lack of integrity in other actions will sooner or later, affect the integrity of his scientific work. A scientist has to be ruthless in his observance of basic ethical scientific values, in case he wants to remain a true scientist.

● In scientific research, the ends are very noble and the means should be equally noble and pure.

● There is a pollution of corruption, nepotism and favouritism all round us. A scientist should not succumb to it, but he shoud fight this evil with all his might. The first step is that he should observe all the basic and ethical and scientific values scrupulously in all his scientific work. The second step is that he should see that all the values are observed with no exception, in the management of scientific institutions. Hopefully, this step will help in removing pollution in the atmosphere outside scientific laboratories also.

● If science grows tremendously, but the scientific spirit decays and the scientific values decline, all will not be well for mankind and all will not be well even with science, since scientific values are even more important than science itself.

● A scientist should defend scientific values and his own selfless passion, devotion and dedication to science, with all the strength at his command

● Scientific research is becomming Big Business and just like any other Big Business, it tends to be exploited by self-seeking individuals for whom Science is not a Search after Truth, but is only a means of getting unfair advantage over others. A scientist should see that the Big Business of Science is conducted according to the highest possible ethical standards.

●There are thousands of dedicated scientists in our country and in the world, but there are also a few pseudo-scientists who want to exploit the Science System for their narrow personal ends, their designs

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Hony. Visiting Professor, IIT, Delhi and University of Delhi.

have to be foiled in the beginning by an enlightened public opinion.

Values-Oriented Science Education and Research

The erosion of human values in our educational institutions has been a matter of great concern. A number of our educational thinkers have expressed their great concern about it. Two National Symposia have been held to discuss ways and means to restore human values in our educational system.

There is a similar erosion of scientific values in our scientific research. The Society for Scientific Values is doing excellent work in creating a public opinion against the unethical practices in scientific research. All the crusades launched by dedicated individuals and groups deserve all the support both in speech and action.

We discuss some of the unethical practices which are causing tremendous damage to science education and research in our country.

Erosion of Scientific Values in Science Teaching

Some unscientific values are transmitted to the students in school science laboratories themselves. They are encouraged to cook results. Students are asked to verify some scientific results with imperfect instruments and then are encouraged to get perfect agreements with theory by manipulating the observations. Teachers themselves declare : "What does it matter if a few observations are changed to get good agreement ?" They do not realise that through this practice, they are teaching forgery, they are teaching something against which science has always fought. They may be teaching some facts of science, but they are killing the Spirit of Science.

Students sometimes do not perform experiments themselves, but copy the results from others' practical notebooks. Sometimes teachers themseves encourage students to do so, so that the authorities may get the impression that all the students have done all the experiments. This happens usually when the equipment is not sufficient for all the students to perform experiments.

It is not uncommon that in many schools and colleges, equipment for performance of only 40-50 per cent of the experiments prescribed by the Board or University is available. The teacher requests the examiner to examine the students out of only those experiments and the examiner is given a party at the expense of the examinees. Many examiners of practical lessons are approached by parents, teachers and otherwise decent citizens to do favours to some students. One wonders whether in this way we are 'educating' or 'miseducating' our students in science.

Even the learning of science is not through the discovery process, but by committing some facts to memory, without understanding all the implications of those facts.

To crown all this is the final murder of the scientific spirit when mass copying takes place in public science examinations.

It is important that the government should see that every science school and college is equipped with all the necessary equipments for all the experiments prescribed by the examining body, that the school managements and teachers see to it that the students perform all the experiments themselves before they appear in the examination, that the 'cooking' of result is regarded as a scientific crime which should be looked down upon by every student and teacher and science examinations are conducted so as to discourage cramming and copying.

One of the basic aims of teaching Science is to teach the Scientific Spirit, the Scientific Methods of Enquiry and the Process of Science. These are even more important than the facts of science. Every lesson in Science should emphasize these basic values of science.

Ultimately it is only a strong public opinion of teachers, students and parents which can restore scientific values of science.

Erosion of Scientific Value in Scientific Research

Manipulation of results of scientific experiments to make them fit certain theories is not an uncommon practice in research. I realised this some years ago when as a vice-chancellor, I was present in one Ph.D. viva-voce examination of a Zoology candidate. He showed some slides of eggs some of which were apparently lying in heaps. When I asked him how he had counted those eggs, he said casually, "I ignored all of them." In this way, he claimed that he had disproved an earlier theory. What was surprising was that his supervisor supported him by asking immediately, "If he could not count them, what else could he do ?" This illustrates the non-scientific value of taking the easy convenient path rather than the correct path which may be difficult.

I found a similar case in a medical thesis, when the candidate came to me to get my help in the statistical analysis of his data. I was surprised to find that all his entries were in terms of even numbers. When questioned, he told me that he was to undertake one hundred case studies, but he could get only fifty patients. His supervisor therefore advised him to multiply all the entries by two. This type of manipulation is quite common in some social sciences theses, depending on results of surveys, in cases where very few people reply to questionnaires sent by investigators.

Many persons become Ph.Ds. in science by following completely unscientific procedures.

Another unscientific or unethical practice is noticed in the names of authors of research papers where many persons who have nothing to do with the actual research in the paper are shown as authors. In some laboratories, the name of the head of the laboratory and the name of the head of a group occurs in every paper sent from that group though these persons may not know even the A B C of the papers. The claiming of authorship of papers which one has not written is completely unscientific and unethical, but sometimes this practice leads to some such persons being dubbed as great scientists and their winning prestigeous national awards.

Another such similar unethical practice arises because some universities insist on an internal supervisor being associated with a supervisor external to the university system. The external supervisor does all the guidance, but the internal supervisor who knows nothing about the theses also gets the credit. Some persons become professors on the basis of the fake research guidance experience and even examine theses in the subjects in which they have provided this fake guidance.

Other unethical practices include (I) publishing of unreferred papers by charging "page-charges", (II) appointment of 'convenient Ph.D. examiners', (III) examination of Ph.D. theses by persons not working in the fields concerned, and (IV) yielding to political and other pressures in faculty appointments.

It appears that many persons engage in scientific research not for the sake of love of science or love of truth or the excitement that scientific research alone can give, but for the sake of undue advantages received. This explains the sharp decline of research productivity of a person after getting a Ph.D. degree or after becoming a professor.

Science as Big Business

Some year, ago my daughter got an offer of a fellowship from a professor in Canada for research in physiology. To see his credentials, I went to the medical college library, went through Medical Science Abstracts and was happy to find that the professor was writing, on an average, twentyfive papers per year in good journals. As such I gave my daughter permission to go and work under his guidance. After a year I went to Canada and I was invited by him to dinner. I naturally congratulated him on his research output. He hesitated for a moment and then confessed, "Most of the papers you saw were written by me. I got grants of a few million dollars every year from the government, I gave fellowship to bright students, I buy costly equipments and I let the students work on problems considered important by the government funding agencies. They write research papers, write my name on these papers so that I may get more grants and they may have no financial problems. I go to the laboratory only when new equipment is to be installed. This was not always the situation. Eight years ago, I used to spend sixteen hours a day in the laboratory and I was doing first-rate research, but I found that the credit for those papers was going to my boss who was always the first author. I then decided to become a science manager and I succeded. I sometimes have a guilty conscience and I feel I was happier when I was an active scientist."

This is the story all the world over. When Science in India was on a small scale, most of the scientists worked in their laboratories. Now that science in India has become a large scale affair, many of them have become managers of big science, control large funds and have praises and prizes showered on them. The Mathews effect becomes operative *viz* "More power will be given to those who have large powers and from those who have small powers, these will also be taken away."

Mighty governments place large funds at the disposal of the big science managers and ask them to achieve results consistent with their aims in peace and war. These managers then give contracts to smaller managers who are their friends and whom they know and trust. The pure scientists who does not want to spend time in getting and managing funds, works in his laboratory with relatively smaller resources. In fact every scientists has to spend some percentage of his time in getting funds and this percentage may vary from five per cent to ninety per cent.

Science as an Industry

Whether one likes it or not, Big Science is a reality today. Scientific knowledge is sought to be manufactured in the same way in which other more tangible products are manufactured. There is a public sector and there is a private sector. There is a large scale science industry and there is a small scale science industry. The small scale industry sometimes acts as auxiliary to large scale science industry. Fortunately there is still some place for individuals with bright ideas, but they are also being encouraged to group together.

Science as a Profession

In scientific industry human beings play a major role and machines have still not become dominant. However, the role of sophisticated scientific equipments, computers and robotics is increasing and the role of the individual scientist is decreasing. Science is however still a profession and peer recognition is still a major motivation for scientific research. There are however signs already that a politically powerful scientist may receive more honours than a scientifically powerful scientist and if this trend continues, science as a profession may decline. Moreover group efforts and team efforts are becoming more important than individual efforts and in this case recognition is also given to groups and teams. The groups are however identified by the names of their leaders and the leaders may be those persons who get funds for the group rather than those who really do the work.

Science and Religion

Sometimes man worships science in the same spirit in which he worships gods and goddesses. He builds large temples for science, instals costly equipment there and prays for results. He is even tolerant of irreligious practices in temples and of unscientific practices in science laboratories. However, unless the priests in a temple are deeply religious and unless the devotees go there for worship of deity and not for asking for undue advantages over others, no progress in true religion takes place. Similarly unless the scientists in a laboratory are truly dedicated to science and are not interested only in getting undue advantages over others by cornering costly equipment, no progress in science can take place.

How is Science Doing ?

Science is doing extremely well. For the last hundred years, it has been growing exponentially with a doubling period of about ten years. This means that if we had one unit in science in 1900, we had two units in 1910, 4 units in 1920, 8 in 1930......256 units in 1980 and we shall have 512 units in 1990 and more than 1000 units in the year 2000.

This means that in the year 2000, we shall have about 1000 times as much science as we had at the beginning of the century. This also means that 99.9% of the science we have today has been created in this century and that 99% of the scientists who ever lived have lived in this century. This also means that in order to keep up-to-date with the explosion of knowledge a scientist has to work very hard indeed.

The exponential growth follows from the mathematical model : rate of growth of science at any time,

= k (amount of science at that time)

The constant k depends on the investment of funds and the dedication of the scientists. If developing countries have to catch up with the developed countries, they have to increase their investments and dedication of their scientists significantly, otherwise the gaps between developing and developed countries are going to increase.

The doubling period applies to all factors *viz* the number of Ph.D.s, books, research papers, journals, funds spent, number of scientists and so on. For the number of scientists, the doubling period cannot go on indefinitely because the doubling period of the human population may be 25 years or so and if the doubling period of scientists is ten years or so, it is easy to see that one day there will be more scientists than human beings. This can happen only if we have robot scientists and machines with intelligence as good or better than that of human beings. This might as well come out to be true !

The Impact of Computers and Informatics on the Pace of Scientific Discovery

The availability of knowledge-based simulation techniques, electronic laboratories, electronic libraries, vast knowledge-bases stored in computers, decision-support systems, computers capable of proving theorems and discovering patterns in complex situations, computer-controlled manufacturing systems, robots, etc., will vastly accelerate the pace of learning and research. As Dr. Raj Reddy said in his recent convocation address at IIT, Bombay, "Computers and communications can truly revolutionise the nature of research and education in the twenty-first century. Each one of us can have a personalised intellectual assistant which could use voice and vision for man-machine communication, tolerate errors and ambiguities in human interaction with machines, provide education and entertainment on a personalised basis, provide expert advice on a day-to-day basis, make vast amounts of knowledge available in an active form and make ordinary mortals capable of superhuman tasks, leading to new discoveries and inventions at an unheard of rates."

Science and Man

I was asked to speak on some aspects of Science and Man. On the one hand a great scientific future backons mankind. Science may grow a thousand fold in the twenty-first century. Every one will have a chance to attain great intellectual heights. The brilliance of a thousand Suns of Knowledge will be available to us.

On the other hand, the Scientific Spirit characterised by objectivity, rationality, integrity, impartiality, fairness, tolerance, excellence and truth seem to be declining in science itself. Unless we reverse this trend and persue Education and Research in science in the true Spirit of Science, Growth in Science will not mean Growth in Wisdom and Character and the net result may be that man may be much further away from divinity than he is to-day, if man survives at all during the next century.

As such we should be ruthless in insisting on scientific values in all Education and Research and in fact in all walks of life. These values are ultimately the same as the great humanistic values. Without these values man is doomed; with these values, he has a great future.

The growth of Science is going to change the relation between Science and Man. The nature of this change will depend on our values and our wisdom.

Let each one of us do some soul-searching, and do only those actions which are worthy of the great values of science and none others. □

Excellence & Relevance in Education

(*Continued from page 4*)

research in higher education, apart from creating scientific manpower will help maintain the industrial competitiveness of the country. Basic research, as contrasted with the applied variety, has a new kind of relevance in creating a hierarchy-free atmosphere, of freedom, of an enquiry with an accent on multidisciplinary approach. Research activity warrants cooperation and collaboration breaking the barriers that have all along divided the academic community. It is but proper that industry establishes campus labs of their R & D wings which will be a shot in the arm for education and research which bids fair to be cost-effective.

Excellence and relevance go hand in hand. Linkages between research establishments and user agencies could be overseen by state agencies and apex bodies to safeguard, pursue and enlarge the interest of research in the institutions and establish its relevance to the nation. The nexus between the ideas and concepts on the one side, and problems and issues on the other may generate a healthy interaction between thinkers and practitioners. This may necessitate what Prof. A. N. Whitehead calls a clash of ideas, nay, an adventure of ideas, which is an opportunity unlike a clash of personalities which is a disaster.

Schemes of collaboration and networking necessitate a measure of mobility. Provisions of transfer and deputation from institutions to agencies and vice versa spell health and sanity to the work undertaken. Inbreeding has more often been the cause of campus unrest. Inter-regional mobility establishes the universal character of a university without any dogmatic consideration of domicile or nativity. The students enrolment and the faculty strength must reflect the all India character of higher education which fosters feelings of national integration.

Excellence of an institution of higher education is a function of many facets. It involves institutional consolidation, fostering of autonomy, restructuring of courses with relevance, orientation of teachers, strengthening of research, provision of infrastructural facilities for students—all geared to ensure that the system of higher education will work more efficiently. Institutional planning, plan implementation, decision-making must be free, and of participatory nature befitting a vibrant democracy like ours. In our national perception, human beings are positive assets and precious national resources. Our endeavour should be to design a strategy for the development of human resources through education. The challenge of education will have to be met by the collective endeavour of the teachers and students as much with earnestness and rigour as with freedom and creativity. □

Tilak Maharashtra Vidyapeeth

Hon'ble Shri Shankarrao B. Chavan, Chancellor of Tilak Maharashtra Vidyapeeth and the Chief Minister of Maharashtra, paid handsome tributes to the Vidyapeeth when he observed: "Work oriented education was introduced here sixty years ago though it has received recognition only recently at other universities". Shri Chavan was delivering the Convocation Address at the annual convocation of the Tilak Maharashtra Vidyapeeth (Deemed University). We are pleased to carry excerpts of this highly informative address in which Shri Chavan traced the history of the Vidyapeeth and described the vicissitudes it passed through till its emergence as a Deemed University.

Convocation

This university was founded on May 6, 1921 to commemorate the contribution of the Late Lokmanya Bal Gangadhar Tilak to national education. Tilak was convinced that the British educational system prevalent in India at that time was solely directed towards the creation of a cadre of educated workers to serve the administrative machinery of the foreign rulers. The British Government had little concern about the values of patriotism, national pride, social commitment and self reliance. "The only way to impart national education was the establishment of a National University," thought Lokmanya Tilak and our university was founded in deference to his thought and desire. Avoiding the defects of the prevailing educational system, this university strove towards making the youth nation-minded, self reliant and able to overcome all obstacles in their way. The student community was not expected by the nationalists to be merely job-seekers after their graduation but be free and dignified members of the society. Educationists working here in Tilak Maharashtra Vidyapeeth meticulously followed this policy right from its inception. Work oriented education was introduced here sixty years ago though it has received recognition only recently at other universities.

Curricula in the faculties of Arts, Commerce Engineering and Ayurvedic Medicine were framed in the beginning and teaching of the subjects also commenced. Even postgraduate training was available in some branches. A number of educational institutions outside Pune sought affiliation to this university. The teachers working here and students too were dedicated to the cause of nation building and many of them actively participated in the National Movement and the freedom struggle. Many of the national institutes had to be closed because of the wrath of the British power. In 1932 educational activity came to a standstill as the institutes imparting national education were declared illegal. In spite of this Tilak Maharashtra Vidyapeeth continued its noble work of education with a few changes suitable to the changing needs of society.

Conscious of the relevance of village uplift in the nation building process the university prepared a curriculum for teaching this subject and began practical work in village organisation in the vicinity of Pune to train young workers in this field. When Gandhiji propounded the philosophy of Basic Education this university supported it fully and conducted Basic Education programme in a number of primary schools. A centre for training of teachers of Basic Education was also run by this university. In 1938 an act concerning indigenous system of medical education was passed by the Government of Bombay and this university took up the responsibility of conducting professional examination for the courses in Ayurvedic medicine for students from all over Bombay Presidency. The delegation of such an important task by the British rulers to a national university speaks volumes about its integrity and diligence in the field of education.

From 1932 to 1947 Tilak Maharashtra Vidyapeeth was continually engaged in adult education, literacy drives, Basic Education, courses in Ayurvedic Medicine, and production of technical and scientific books in Marathi, thus catering to the various educational needs of the community at large. The Vedic Sanshodhan Mandal started by this university for advanced research in vedic studies carried on its activities without interruption.

The conduct of public examinations in Sanskrit, English and Mathematics for school going children gave a boost to Tilak Maharashtra Vidyapeeth's work in the field of higher education. Shri Balmukund Sanskrit Mahavidyalaya was started by Tilak Maharashtra Vidyapeeth for higher education in Sanskrit. A novel method of teaching Sanskrit, combining the traditional and modern techniques was evolved and students passing the tests were awarded Shastri degrees. The state authorities approved the award of these degrees. These degrees were also granted equivalence with degrees conferred by other universities established by law. This college teaches courses in Sanskrit language and literature from the school level to the advanced postgraduate level.

In 1969 a unique scheme of imparting training in Social Sciences at the university level was introduced with the setting up of Nehru Institute of Social Studies. This institution started a postgraduate course 'Parangat' in social sciences with emphasis on the interdisciplinary approach. Tilak College, which had to be closed down during the years of our struggle for independence, was started again and two new diploma courses, one in Salesmanship and the other in Office Management were instituted. All these programmes received approbation from leaders in the field of education. Many a research project had been undertaken by Tilak Maharashtra Vidyapeeth in the fields of Social Sciences, and Sanskrit studies. Many of the publications of this university have proved to be significant and original contributions to various fields of learning.

This university believes that it has a stake in the process of social change and so it has undertaken the work of conducting short term courses in Yoga, Ayurveda, Library Science, and Practical accountancy for women which will fulfil the educational needs of society in years to come.

Seven non-agricultural autonomous universities are functioning in the State of Maharashtra at present. They are working in the sphere of higher education following the conventional curricula. The courses offered in these are available only to those students who have attained certain academic standards in formal education. A large number of the student community finds itself excluded from this small group, and is thus deprived of the opportunity for higher education. The number of students desirous of higher education has been growing rapidly since independence and though new colleges have been started, the craving of the masses for higher learning cannot be satisfied. A considerable number of young students is deprived of higher education because of economic and family constraints. A few of these obtain higher degrees as external students but they have to depend entirely on their individual effort for want of guidance. Being aware of this felt need, Tilak Maharashtra Vidyapeeth has started courses in higher education for those who were denied the opportunity. These courses may help adult learners barred from the portals of higher education like leaders from rural areas, labourers, workers and women students in the acquisition of higher education. But, we have to go a long way in this direction.

While catering to the various needs of society and planning new undertakings suitable to the demands of the age, Tilak Maharashtra Vidyapeeth had to take upon itself a new responsibility when the University Grants Commission conferred on it the status of a deemed university. This has opened new vistas of growth for Tilak Maharashtra Vidyapeeth. The Union Government has envisaged a New Education Policy and the state is geared up for its implementation. College development, realignment of college education facilities, emergence of a few select colleges into autonomous ones, restructuring of the pre-university courses, training of teachers, qualitative improvement in research work, and establishment of a rural university are some of the tasks in the field of higher education. Tilak Maharashtra Vidyapeeth which carried on its noble work even in the days of British rule and engaged itself in the work of social development should come forward to implement some of these tasks. ☐

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Why IIT Graduates Settle Abroad?

A study recently conducted by IIT, Bombay reveals that lack of adequate opportunities for career growth and living conditions at home coupled with the poor industrial climate in India are possible push factors for emigration from the IITs. Brain drain (BD), as the study points out, forms part of the flow of high quality manpower (HQM) from the less developed countries to the developed countries (DC), a phenomenon which even the United Nations has reported.

The most significant impact of brain drain on the underdeveloped country is that its manpower which feeds the technology base of the developed countries, makes for a "reverse flow of technology". When less developed country tries to 'purchase' technology it cannot do so, since it has inadequate knowledge of promotion in the absence of any HQM available domestically.

Quoting from the journal of Higher Education and Science Age, the study states that Indian HQM abroad experiences the three phases. The golden period of the graduate student under the neo-colonal patronage of the western professor, the middle phase of conflict over whether settled for a safe and unexciting professional life, or fight a vain struggle resulting in bitterness over poor scientific recognition. Thirdly, the mature professional life for either category with attendant restlessness or frustration.

The student is further informed that while science is universal, the institutions of science are not. While Indian immigrants are encouraged to be "bright boys" they are not expected to be "powerful and trend-setting men", showing plainly that the western scientific establishment is more than fair to its most outstanding imports.

"Quite unacceptable", say some of the IIT graduates, who question the wisdom of staying back in India, when high specialisation study programmes are available without any obstacles and "politics" in US universities. The aid available in an American university is by far many times higher than a stipend for a postgraduate engineering programme in India.

Better scientific establishments with more freedom for individual growth and performance together with better economic incentives would keep them in the country itself.

One of the common complaints from the graduates is that there is little emphasis on domestic research and development efforts, and a high ranking technologically qualified who joins a "reputed" organisation is confined to translating imported technology upto implementable forms.

Poona Varsity Plans Distt. Sub-Centres

Poona University has drawn up elaborate plans for decentralisation. It proposes to establish district sub-centres at each of the five district headquarters. These sub-centres will be delegated with some administrative, financial and academic functions. Dr. V.G. Bhide, Vice-Chancellor, said each of these centres could gradually grow and develop into a full-fledged university.

Dr. Bhide said to reduce rigidity in the education system, the national policy on education had recommended giving of autonomy to colleges. The university would soon process cases of 14 colleges which had applied for autonomy. He said autonomy would be granted essentially to improve the standard of teaching and changing the evaluation system and it must be earned on the basis of academic programmes the colleges wished to pursue.

The University also plans to conduct several skill-oriented courses in the evenings and on week-ends for the benefit of the students. The university was making a list of such courses and laying down syllabi for the courses. After the completion of such a six-month course, the student would be entitled for a certificate, while those completing one-year courses for a diploma. There would also be qualitative difference in the certificate, diploma and graduate level courses.

Hyderabad Varsity to Offer New Courses

The University of Hyderabad has decided to establish a new school, "Sarojini Naidu School of Performing Arts, Fine Arts and Communication." Besides, two new centres, a "Centre for Applied Linguistics and Translation Studies" and a "Centre for Comparative Literature," would be started from the academic year 1988-89.

The Sarojini Naidu School of Performing Arts, Fine Arts and Communication would offer post-graduate courses leading to M.A. in four subjects, namely, Dance, Theatre Arts, Painting and Communication (audio-visual media, TV and Radio). The courses would be full-time spread over four semesters.

The Centre for Applied Linguistic and Translation Studies would offer M. Phil. and Ph.D. programmes in Applied Linguistics with special reference to translation. The centre would be engaged in developing translation manuals and materials for training professional translators in major Indian languages and English. The Centre for Comparative Literature would also offer M Phil. and Ph.D. courses from the next academic year of 1988-89.

Vocational Training Centre for Bombay

A vocational training centre is likely to be set up in Bombay under the auspices of the Indo-German Chamber of Commerce. It is modelled on the German system of "dual education."

Under the system, practical "on-job training" and theoretical education in the vocational school are closely intermeshed to provide a praxis-oriented, through training for young executives. The system is stated to be working well in Germany.

Poona Open Universit

The Poona University is report-ed to have decided to establish a Open University and Professo Ram Takawale, former Vice-Chan cellor has been entrusted with th implementation of the project.

Under the scheme, the three majo wings of the university—adult edu cation centre, continuing educa tion centre and the educationa media research centre would initial ly be amalgamated to become

Course Offerings at the Ind

Sl. No.	Course	Duration	Maximum Completion period	Min. Age	Minimum qualification	Minimum experience
1.	Diploma in Management Module-I leading to Master's degree	1 year	4 years	25 years	Graduate OR Non-graduate	Three years visory or ma Six years s sory or mana
2.	Diploma in Distance Education	1 year	4 years	Nil	Master's degree in any subject OR Any professional degree e.g. B.E., L.L.B.	Nil
3.	Diploma in Creative Writing	1 year	4 years	25 years	Nil	Nil
4.	Certificate Course in Rural Development	3 months	3 months	N.A.	Meant for Block Development Offi North Eastern States & State of Raj	
5.	Bachelor of Arts/ Commerce	3 years	8 years	Nil 20 years	for 10+2 for Non 10+2	Nil
6.	Cetificate Course in Food & Nutrition	6 months	2 years	20 years	Nil	Nil

nucleus for the proposed open university.

According to the draft proposal for the open university, educational courses in subjects which are regularly taught in the university would not be covered by the open university. But informal and socially-oriented educational courses would be introduced by the open university. Short-term vocationally-oriented courses, diploma and degree both, would form the core of the new scheme.

The new university is expected to start functioning from the coming academic year.

Central Assistance for Anna University

The Union Ministry of Human Resource Development have sanctioned a grant of Rs. 40.00 lakhs to Anna University for meeting the non-recurring expenditure during 1987-88, for modernisation and removal of obsolescence in mechanical Engineering Lab of the College of Engineering, Automotive Engine and Vehicle Testing Laboratory of the Madras Institute of Technology, and Lab. Studies and Workshop of the School of Planning and Architecture.

Renal Sciences Facilities at Sanjay Gandhi Institute

The Sanjay Gandhi Post-graduate Institute of Medical Sciences (SGPGI), Lucknow, is reported to be developing one of the best facilities of renal sciences which will

hi National Open University

rtise- ise in	Admission Criteria	Commencement	Fee Break-up		
ust	On merit	January	Registration fee Programme fee (Rs. 750 for all the five courses) Exam. fee (Rs. 100 for all the five courses)	Rs. 15 Rs. 150 per course Rs. 20 per course	
ust	On merit	January	Registration fee Programme fee (i.e. Rs. 100x5 Rs. 500 in total) Examination fee (i.e. 20x5	Rs. 15 Rs. 100 per course Rs. 20 per course Rs. 100 in total)	
gust	Short answer test	January	Registration fee Programme fee (Rs. 750 for all the five courses) Examination fee (i.e. 20x5 Rs. 100 for all the courses)	Rs. 15 Rs. 150 per course Rs. 20 per course	
epending upon sponsorship from the State. No fee					
pril	On merit (10+2)	January	Ist Instalment IInd Instalment	Foundation Courses Rs. 180 Rs. 180 + 120	Elective Rs. 250 Rs. 230
ugust	Entrance test in September (non 10+2)	August	Entrance test Preparatory courses	Rs. 25 Rs. 120	
pril	Test	August	—		

cater to the needs of millions of people suffering from renal ailments in Uttar Pradesh and neighbouring States. According to Dr. Mahendra Bhandari, Professor at the Urology Department, the "shock therapy machine" would soon be acquired which 'destroys the renal stones in minutes'. This machine costing about Rs two crore, can pulverise the stones without any surgery. There are also no chances for recurrence of this stones, he pointed out.

School of Economics & Behavioural Sciences

A Centre of Excellence known as the "School of Economics and Behavioural Sciences" has been created at Bhopal University with the financial assistance from the State Government. This Centre which includes the three teaching departments of Economics, Psychology and Sociology" will have interdisciplinary teaching and research.

The University Grants Commission (UGC) has also sanctioned to the University Rs. 10 lakhs as special assistance for the purchase of books and journals and Rs. 40 lakhs for the purchase of equipment in different teaching departments of science and humanities in addition to the VII plan allocation for the University.

Fellowship for Dr. Beg

Dr. Mohammad Hanif Beg, Lecturer in Cardiothoracic and Vascular Surgery, J.N. Medical College, Aligarh Muslim University has been elected to the fellowship of the International College of Angiology, New York (USA). This is in recognition of Dr. Beg's performance comprising over 725 major operations which include nearly 200 closed heart operations and about 1200 minor thoracic operations.

He has also fifty papers to his credit published in various national and international journals.

News from Agril. Varsities

ICAR Summer Institutes/Short Courses

The Indian Council of Agricultural Research (ICAR) has decided to hold 25 Summer Instt./Short Courses in the field of Agriculture Sciences during Summer vacation of 1988 for the benefit of teachers and specialists. The main objective of this inservice training course would be to communicate the latest technological advances in the subject and provide the necessary orientation to teachers and research workers of agriculture/agricultural engineering/Animal Science/Fisheries so that they are able to relate the teaching of their subject to the problems in their respective disciplines. The ICAR have undertaken to meet the expenses for organising these Summer Instts /Short Courses. It would be possible to accommodate one or two from the sponsored list of teachers, researchers and extension specialists from the University/College/Institute/Deptt. who are actively engaged in teaching/research or extension in the respective subjects.

Further details with regard to eligibility requirements, duration of the course, date of commencement, registration fee, etc. may be obtained from the college/university concerned or the Assistant Director General (ASE), Indian Council of Agricultural Research, Krishi Anusandhan Bhavan, Pusa, New Delhi-110012.

Sophisticated Instruments for HAU Scientists

Dr. C. Niemoller, Cultural Counsellor, West German Embassy, gifted on behalf of the Alexander von Humboldt Foundation of West Germany some sophisticated instruments to Dr. Gopal Krishna, Animal Nutritionist of the Department of Animal Breeding, HAU, Hisar. The equipment comprising RUSITIC (artificial rumen), Buchi Nitrogen Analyser and fine auto pipettes have been gifted in recognition of the meritorious work carried out by Dr. Gopal Krishna. The equipment will be used for studying the quality of feeds and fodder fed to dairy animals viz. cows, buffaloes and goats. Thus it would be possible to carry out advanced research in this area.

Dr. Niemoller also gifted a Beta counter to Dr. M.M. Galhotra, Department of Animal Production Physiology & Dr. A.S. Virk, Department of Animal Nutrition. This will be helpful to estimate the harmonal levels in animals.

Dr. R.S. Malik of the department of Soils, was presented a sensor recorder for studying soil physical properties while Dr. I.S. Dahiya was offered a computer for soil investigation purposes.

This equipment, amounting approximately Rs. 23 lacs have been gifted to these scientists for their outstanding research work in the respective areas.

Speaking on this occasion, the Director of Research, Dr. Mahendra Singh congratulated the scientists and assured Dr. Niemoller that these instruments will be used for doing investigational work in the respective fields.

Earlier, Dr. C. Niemoller visited the H.A.U. campus and saw the research work being done at the laboratories of the department of Animal Breeding and the department of Soils. In a meeting, held with the senior scientists of the university, Dr. Niemoller explored the possibilities of initiating an Indo-German partnership project on the topic "Developing technology for minimising the cost of milk production in the dairy animals raised under tropical/subtropical conditions".

AIU News

Bahrain Secondary Certificate Recognised

The Association of Indian Universities (AIU) have formally recognised the General Secondary Certificate of Bahrain for purposes of admission to higher studies.

The Ministry of Education of Bahrain had invited Shri K. C. Kalra, Deputy Secretary (Evaluation), AIU to acquaint him with the secondary stage pattern of education in Bahrain and to recommend the parity of its General Secondary Certificate. The Certificate had earlier been equated with the old pattern of 11 years secondary education in India. Almost all the countries in the Arab Gulf, including Bahrain, have switched over to 12 years secondary education during the last few years.

Bahrain spends about 13% of its budget on education as it is thought to be the best investment for an assured future of the country. It claims to have reached an 'Adult' stage in education with the commissioning of Gulf University in Bahrain. The country has now 2 universities, an engineering and medical college each and about 139 Primary/Secondary Schools for a population of about 5 lakhs. It raised necessary infrastructure facilities to enrol every child in the school and to see him through the university level. Bahrain is the only country in the Gulf which has the facility for teaching of English as a second obligatory language in secondary schools. Although standardisation of education is regulated through the Education Ministers Conference of the region. Bahrain is treated as one of the advanced countries in the field of education. The country has achieved the target of obligatory and free education upto primary stage.

Shri Kalra had associated in his Team a Member of the Indian Faculty now in Bahrain University and Principals of Indian Secondary Schools in Bahrain and Dubai for the study, as these Members were found to be acquainted with the pattern of education in both the countries. The Committee had visited a number of Secondary Schools, met the Minister and other senior officials and discussed with them various issues involving comparability of the two systems.

The Team's report was placed before the appropriate authorities of the AIU which have approved the recognition.

SPORTS NEWS

Campus Fitness Programme

The Department of Physical Education and Sports Sciences of the Annamalai University runs a Campus Fitness Programme for the benefit of its staff and students. Students, teachers and other members of the staff test their own Physical Fitness through a medium of simple battery of tests conducted by the Department with the help of prospective teachers in physical education. Simple tests have been selected mainly to test strength, endurance and cardio vascular efficiency. These tests include: **For men:** Floor Push ups—straight back, 12 min. Jog/run/walk. Sit ups-bend knee for 1 min. continuous. **For women:** Flexed arm hang (in seconds), Sit ups (band knee) and 8 min. Jog/run/walk.

For each participant, a fitness card is maintained which shows the periodical improvement he or she has made in terms of frequent testing. The programme is being organised at the SNIPES Field Station and UGC physical conditioning centres.

We Congratulate ...

1. **Prof. K.V. Ramana who has been appointed as Vice-Chancellor of the Andhra University, Waltair.**
2. **Prof. S.V.J. Lakshman on his appointment as Vice-Chancellor, Sri Vankateswara University, Tirupati.**
3. **Shri G.S. Randhawa who has been appointed as Vice-Chancellor of the Guru Nanak Dev University, Amritsar.**
4. **Dr. Madhukar Govindrao Bokare who has been appointed as Vice-Chancellor of Nagpur University.**

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertations as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

CURRENT DOCUMENTATION IN EDUCATION

A List of Select Articles culled from periodicals received in the AIU Library during March, 1988

EDUCATIONAL PHILOSOPHY

Klafki, Wolfgang. The significance of the classical theories of education for an up-to-date concept of general education. *Education* (36), 1987, 7-31.

EDUCATIONAL PSYCHOLOGY

Kagan, Dona M. The social implications of higher level thinking skills. *Res Hr Edn* 27 (2), 1987, 176-87.

EDUCATIONAL SOCIOLOGY

Chiplunkar, V.V. Education and development of women : Project Maher. *J Ednl Plg & Admn* 1 (2), 1987, 173-90.

Imtiaz Ahmad. Educational development of minorities in India : Future perspective. *J Ednl Plg & Admn* 1 (2), 1987, 191-209.

Moonis Raza and Premi, Kusum K. Indicators of equity in education : A conceptual framework. *J Ednl Plg & Admn* 1 (2), 1987 1-29.

Saiyid Hamid. Education of minorities : Future perspective. *J Ednl Plg & Admn* 1 (2), 1987, 210-15.

EDUCATIONAL ADMINISTRATION

Gross, Ronald. Leadership for the learning society : Harvard's Institute for the management of lifelong education. *Coll Bd Review* (146), 1987-88. 10-3, 24-5.

Sapra, C.L. and Mathew A. Promoting equity and diversity in education : Challenges for educational administrators. *J Ednl Plg & Admn* 1 (2), 1987, 57-89.

TEACHERS & TEACHING

Aston, Mike. Professional development and teacher education—Have we got it right. *Computers & Edn* 12 (1), 1988, 79-83.

Klemm, W.R. Ten ways to improve graduate teaching. *Coll Bd Review* (146), 1987-88. 16-9, 26-9.

Lewis, Florence C. On self-esteem. *College Bd Review* (146) 1987-88. 2-3, 31-2.

Trainor, Richard H. Implementing computer-based teaching and research : The need for a collaborative approach. *Computers & Edu* 12 (1), 1988, 37-41.

Underwood, Jean. An investigation of teacher intents and classroom outcomes in the use of information-handling packages *Computers & Edn* 12 (1), 1988, 91-100.

EDUCATIONAL TECHNOLOGY

Adams, Tony. Computers in learning : A coat of many colours. *Computers & Edn* 12 (1), 1988, 1-6.

Beevers, C.E. and others. The CALM before the storm : CAL in university Mathematics. *Computers & Edn* 12 (1), 1988, 43-7.

Bennett, Mike and Smith, David. Evaluating television-linked computer software. *Computers & Edn* 12 (1), 1988, 133-9.

Chatterton, John L. Knowledge control : The effect of CAL in the classroom. *Computers & Edn* 12 (1), 1988, 185-90.

Degl' Innocenti, Riccardo and Ferraris, Maria. Database as a tool for promoting research activities in the classroom : An example in teaching Humanities. *Computers & Edn* 12 (1), 1988, 157-62.

Duchastel, Philippe C. Display and interaction features of nstructional texts and computers. *British J Ednl Tech* 19 (1), 988, 58-65.

Gardner, Nigel. Integrating computers into the university curriculum : The experience of the U.K. Computers in teaching initiative. *Computers & Edn* 12 (1), 1988, 23-7.

Hartley, James. Using principles of text design to improve the effectiveness of audiotapes. *British J Ednl Tech* 19 (1), 1988, 4-16.

Mason, Robin. Computer conferencing : A contribution to self-directed learning. *British J Ednl Tech* 19 (1), 1988, 28-41.

McCormick, Sophie and Bratt, Peter. Some issues related to the design and development of an interactive video disc. *Computers & Edn* 12 (1), 1988, 257-60.

Thornburg, David D. From metaphors to microworlds : The challenge of creating educational software. *Computers & Edn* 12 (1), 1988 11-5.

EDUCATIONAL EVALUATION

Joshi, Pradeep. Question Banking as a tool of examination reform. *Prog of Edn* 62 (8), 1988, 186-88, 185.

Kealy, Mary Jo. Student perceptions of college quality. *J Hr Edn* 58 (6), 1987. 683-703.

Lane, David S, Jr and others. The effects of knowledge of item arrangement, gender and statistical and cognitive item difficulty on test performance *Ednl Psy Measurement* 47 (4), 1987, 865-79.

Muffo, John A and others. Using faculty publication rates for comparing 'PEER' institutions. *Res Hr Edn* 27 (2), 1987, 163-75.

Stodt, Martha McGinty. Educational excellence as a prescription for retention. *New Directions Hr Edn* (60), 1987, 5-13.

Stodt, Martha McGinty. Intentional student development and retention. *New Directions Hr Edn* (60), 1987, 15-26.

ECONOMICS OF EDUCATION

Mohammad Abul Basher Mian. Demand for higher education : A comparative study of ratio and logit models. *Manpower Journal* 21 (3), 1985. 19-29.

Sharma, G.D. Equity, quality and costs : Some fundamental issues and evidences. *J Ednl Plg & Admn* 1 (2), 1987, 30-7.

VOCATIONAL EDUCATION

Hearn, James C. Impacts of undergraduate experience on aspirations and plans for graduate and professional education. *Res Hr Edn* 27 (2), 1987, 119-411.

ADULT EDUCATION

Cervero, Ronald M. Professionalization as an issue for continuing education. *New Directions Cont Edu* (36), 1987, 67-78.

Eswara Reddy, V. Human rights : The interactive context of development and non-formal education. *Indian J Adult Edn* 48 (4), 1987, 53-61.

Garrison, D. Randy. The role of technology in continuing education. *New Directions Cont Edu* (36), 1987, 41-54.

DISTANCE EDUCATION

Meintjes, Laurie. Program development : Plan for success take time to succeed. *Distance Edn* 8 (2), 1987, 162-75.

Nation, Daryl. Some reflections upon teaching Sociology at a distance. *Distance Edn* 8 (2), 1987, 190-207.

COMPARATIVE EDUCATION & COUNTRY STUDIES

Flather, Paul. Challenge that was not met. *Times Hr Edn Supplement* (795) January 29, 1981, 5.

Shahane, Vasant A. Perspectives on Indian universities and research in Humanities. *New Quest* (66), 1987, 363-74.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

BIOLOGICAL SCIENCES

1. Mookerji, Prasun. *Intra and inter-population variations in anthropometric variables and work performance in Lodhas, Mahalis and Mundas of West Bengal*. Delhi.

2. Rai, Shri. *The influence of season of birth on the formation of dermatoglyphic characteristic : A case study among the Kalar of Madhya Pradesh*. HS Gour. Dr. Ramesh Choube.

3. Shil, Anu Prabha. *Comparative evaluation of growth patterns in various biological variables among Lepchas, Bhutias, Sherpas and Tamangs of Sikkim Himalayas*. Delhi.

4. Srutikar, Pankaj Kumar. *Finger and palmar dermatoglyphic variationg among some Assamese castes*. Gauhati. Dr. Renuka Das.

Marine Biology

1. Chandran, A. *Functional morphology of the digestive system in certain marine lernaeopodids (Copepoda : Siphonostomatae) with notes on the nature of infestation of copepod parasites of fishes of the South-West Coast of India*. Kerala. Dr. N. Balakrishnan Nair.

2. Gopinathan, K. *Ecology and fisheries of certain inland water bodies of Kerala*. Kerala. Dr. N. Balakrishnan Nair.

3. Shadananan Nair, K. *Hydrometeorological studies of Kerala in relation to the Western Ghats*. CUST. Dr. H.S. Ram Mohan.

Biochemistry

1. Annapurna, V.V. *Effects of oral contraceptive on non-regenerating and regenerating rat liver*. Osmania.

2. Basu, Jayati. *Effect of fatty acid supplementation on some biochemical properties of Saccharomyces cerevisiae*. Calcutta.

3. Das, Sanjay Kumar. *Mechanism of action of mycobacillin on a molecular level*. Calcutta.

4. Kanthe, Vijaya Vaman. *Studies in alteration in microsomal electron transport reactions*. Marathwada. Dr. S.S. Pawar.

5. Kundu, Manikuntala. *Studies on some exocellular proteins of Neurospora crassa and Saccharomyces cerevisiea.* Calcutta.

6. Nandi, Pranati. *Effect of dietary fibre(s) on the absorption of some nutrients in experimental rats.* Calcutta.

7. Nandi, Ratna. *Fermentative production of glucoamylase* Calcutta.

8. Padmaja, G. *Biochemical studies on cassava, Manihot esculenta Crantz, toxicity with special reference to linamarin.* Kerala. Dr. K. Ramachandra Panicker.

9. Panth, Meena. *Evaluation of Vitamin : A status in pregnancy.* Osmania.

10. Parchwani, Hundal. *A study of the effect of feeding edible oil, cholesterol, onion, garlic and guar gum on the development of regression of atheros, Clerotic plaques.* Rajasthan. Dr. P.K. Sharma.

11. Usha, V. *Biochemical investigations on dietary fibre.* Kerala. Dr. P.A. Kurup.

Botany

1. Agarwal, Madhu. *Regulation of seconpary metabolites in Trigonella species by chemical treatments.* Rajasthan. Dr. S.C. Jain.

2. Anjaiah, N. *Effects af salinity on osmoregulatory solutes in Atriplex griffithii Mog.* Bhavnagar. Dr. A.J. Joshi.

3. Appanna, Nikku. *Studies on airspora and daily pollen release at Vijayawada A.P. India.* Andhra.

4. Arya, Inder Dev. *Studies on cytogenentics and tissue culture of certain legumes.* Rajasthan. Prof. N. Chandra.

5. Awasthy, Rama, *Studies on the cellulose degradation and synthesis by some soil fungi.* Durgawati. Dr. S.K. Hasija.

6. Bhoite, A.S. *Studies on salt tolerance of Aeluropus lagopoides Linn : A halophytic grass.* Bhavnagar. Dr. A.J. Joshi.

7. Chatterjee, Meenakshi. *Aerobiological studies of Bangalore North with particular reference to fungal aeroallergens.* Bangalore. Dr. Shripad M. Agashe.

8. Chauhan, Suchita. *Assimilation of inorganic nitrogen in some tropical forest tree seedlings.* Avadh. Dr. H.S. Srivastav.

9. Datt, Bhaskar. *Flora of Chhatarpur District, Madhya Pradesh.* Kumaun.

10. Ghadge, Dattatrya Nanasaheb. *Studies in discomycetous fungi.* Shivaji. Dr. M.S. Patil.

11. Harsh, Rajni. *Histopathological studies of some insects induced plant galls.* Rajasthan. Dr. Uma Kant.

12. Jain, Shakuntala. *Effect of dust pollution on opium poppy and wheat of Mandsaur District.* Vikram. Dr. R.K. Tugnavat.

13. Johar, Maninder Singh. *Studies in rhizobium ecotypes of Leucaena leucocephala and their nitrogen fixation potential.* Durgawati. Dr. J.N. Dubey,

14 Kamala Devi, T. *Biological studies on the germination of winged bean, Phosphocarpus tetragonolobus (L) (DC) seeds.* Calicut. Dr. K. Sreekumar and Dr. P.S. Krishnan.

15. Kundu, Prasanta Kr. *Studies in damping-off disease of cauliflower by Rhizoctonia solani Kuhn and its biological control.* Burdwan. Prof. Balen Nandi.

16. Lazarus, Smita Nilima. *Investigations on the production of antibacterial and antifungal antibiotics by actinomycetes from soils of Jabalpur.* Durgawati. Dr. G.P. Agrawal.

17. Meera Bai, Guddati. *The ecology of butterflies and their role in natural pollination of plants at Visakhapatnam, A.P., India.* Andhra.

18. Mulik, Niranjana Gopalrao. *Studies on some aspect of mangroves.* Shivaji. Dr. (Smt) L.J. Bhosale.

19. Narasimham, Malapaka. *Tissue culture and reproductive physiology of some legumes.* Delhi.

20. Naveen Chandra. *Cytological and mutational studie in Gloriosa superba Linn.* Nagpur. Dr. J.L. Tarar.

21. Paliwal, Ranjana. *Structural and functional relationship of photosystem II components in higher plants.* JNU Prof. G.S. Singhal.

22. Rama Devi, Kothapalli. *Pollination ecology of Zizyphus mauritiana and Z. oenoplia of Rhamnaceae.* Andhra.

23. Sah, N.C. *Ethnobotany in the mountainous region of Kumaun Himalaya.* Kumaun. Dr. S.K. Jain.

24. Samant, S.S. *Flora of the Central and South Eastern parts of Pithoragarh District.* Kumaun. Dr. Y.P.S. Pangty.

25. Sarma, Donepudi Viswanatha. *Embryological, palynological and foliar dermotype studies in Asteraceae.* Andhra.

26. Satyanarayana, Narra Venkata. *Morphological physiological and biochemical responses of the seedlings of pigeonpea, Cajanus cajan (L) Millsp to sulphur dioxide* Andhra.

27. Satyanarayana Murty, Kambhampati. *An ecologica study of Lake Kondakarla.* Andhra.

28. Sharma, Binju. *Studies on pollen morphology of angiospermic flora and in air borne pollen and spores causing allergy to human being of Jaipur region.* Rajasthan. Dr. Na Jyot Sarma.

29. Sharma, Kiran Kumar. *Control of organ differentiation from somatic tissues, and pollen embryogenesis in anther cultures of Brassica juncea (L.) Czern.* Delhi.

30. Shrivastav, G.K. *Effect of sewage sludge applications and sewage enriched cadmium and zincs on three varieties of Abelmoschus esculentus (L.).* Vikram. Dr. V.P. Singh.

31. Singh, Atul. *Studies on false smut, Claviceps oryzae sativae Hashioka of rice in eastern Uttar Pradesh.* Avadh. Dr H.B. Singh.

32. Singh, Devendra Pratap. *Physiological aspects of Azolla-Anabaena symbiosis, its contribution to nitrogen nutrition and yield of rice.* Utkal.

33. Venkanna, Pamarti. *Flora of Krishna District, Andhra Pradesh.* Andhra.

34. Ziledar Singh. *Studies on seed mycoflora of important oil and seed crops.* Avadh. Dr. H.B. Singh.

Agriculture

1. Arora, Indu. *Genetic analysis of certain developmental traits in relation to grain quality in Indian mustard.* PAU.

2. Behera, Bananjaya. *Studies on some seed borne diseases on groundnut.* Orissa Agrl. Dr. A. Narain.

3. Chakrabarti, Syamali. *Studies on some aspects of the problem of breeding low temperature tolerant Boro Paddy.* Calcutta.

4. Chanda, S.V. *Physiological and biochemical studies in relation to productivity parameters and cell elongation in pearl millet.* Saurashtra. Dr. Y D. Singh.

5. Chaubey, Ashok Kumar. *A study on the impact of integrated rural development programme on socio-economic life of farmers in Varanasi District of UP.* BHU. Dr. B.D. Panday.

6. Chauhan, Youdhbir Singh. *Investigations on the morphological, biochemical and genetical basis to fruit rot resistance, phytophthora nicotianae var. parasitica in tomato.* YS Parmar. Dr. M R. Thakur.

7. Deka, Arun Kumar. *Exchange/adsorption studies on , Cu, and Co in soils of semiarid and humid regions.* HAU.

8. Dwivedi, Naresh Behari. *Studies on sugarcane culmilous smut caused by Ustilago scitaminea (Sydew).* RAU.

9. Jagan Nath. *Structural and biochemical nature of sistance in apple to Venturia inaequalis (Cke) Wint. causing ab.* YS Parmar. Dr. J.L. Kaul.

10. Kapoor, Onkar Chand. *Effect of mulching, methods of anting and irrigation management on percolation losses, water se efficiency and soil thermal regimes in potato.* HP Krishi. r. B.S. Kanwar.

11. Kishori Lal. *Studies on the effect of different sources f nitrogenous fertilizers on the yield and quality of chinery ybrid types of tea, Camellia sinensis L.* YS Parmar. Dr. T.R. hadha.

12. Rajan Kumar. *Cytogenetic investigations in male terile mutants of rice.* PAU.

13. Rattan Chand. *Variability and biocontrol of Phytophthora cactorum on apple.* YS Parmar. Dr. V.K. Gupta.

14. Sharma, Jatinder Kumar. *Study of genetics of some morphological, biochemical and physiological characters associated with drought resistance in maize, Zea mays L.* HP Krishi. Dr. S.K. *Bhalla.*

15. Subhash Chander. *Studies on resistance to Erysiphe graminis f.sp. tritici causing powdery mildew in wheat.* PAU.

16. Tripathi, Radhey Krishna. *Bionomics of red cotton bug, Dysdercus Koenigii F. and its insect enemies and their comparative susceptibility to cerrain anticholinesterases.* BHU. Dr. H.N. Singh.

17. Vaidya, Dina Nath. *Influence of environmental factors on foraging activity of honeybees and their role in berseem, Trifolium alexandrinum L. seed production.* YS Parmar. Dr. O.P. Bhalla.

Zoology

1. Balamani, B. *Studies on population dynamics of helminth and acanthocephalan parasites of certain avian hosts.* Osmania.

2. Bandyopadhyay, Tarit Kumar. *Studies on the ecology of the pest complex of brinjal in West Bengal.* Calcutta.

3. Chatterjee, Anupam. *Chemical protection against ionizing radiation and radiomimetic chemical induced chromosomal aberrations in mammalian lymphocyte culture.* BHU. Dr. (Mrs) M.J. Raman.

4. De, Kalyan. *Studies on the morphology, ecology and control of mango nut weevil, Sternochetus gravis/Fabricius (Coleoptera : Curculincidea) in Tripura.* Calcutta.

5. Joshi, Rachana. *Studies on the biology and control of grape vine beetle, Aides scutellata Hope (Chrysomelidae : Coleoptera).* Kumaun.

6. Nayak, Manorama. *Limnology of the marginal waters of the Hirakud Reservoir.* Sambalpur. Dr. Ajoy Kumar Patra.

7. Parameswara Kurup, K.N. *Some aspects of limb regeneration in the fresh water crab, Paratelphusa hydrodromous Herbst.* Calicut. Dr. Rita G. Adiyodi.

8. Patil, Mohan Ganpati. *Comparative studies on lipids in adipose tissue of Indian bats.* Shivaji. Dr. V.A. Sawant.

9. Remadevi, O.K. *Biology, morphology and host parasite relationships of Goniozus nephantidis, the bethylid parasite of the black-headed caterpillar pest of coconut, Opisina arenosella Walker.* Calicut. Dr. U.C. Abdurahiman.

10. Selvan, M. Senthamizh. *Physiological studies on chosen insect pests, predators and parasites.* Madurai.

11. Shanavas, K R. *Studies on haemoprotozoans from the lower vertebrates of Kerala, India.* Calicut. Dr. P. Ramachandran.

12. Sharif Uddin Ahmed. *An electrophoretic approach to biochemical systematics of animals with special reference to fish.* Manipur. Prof. H. Tombi Singh.

13. Singh, Oinam Lukhoi. *Comparative histomorphology and certain aspects of physiology of the digestive tract of Odoiporus longicollis (Oliv) (Coleoptera : Curculionidae).* Manipur. Dr. B. Prasad.

14. Syed Akhtar Hussain. *Abnormal sexual development and infertility in humans: A cytogenetic, hormonal and cell cycle kinetic study.* BHU. Dr. R. Bamezai.

15. Tripathi, Arun Kumar. *Studies on insect feeding deterrents in plants.* Avadh. Dr. Harihar Jha.

16. Viswanathan, N. *Maternal entrainment of the circadian activity rhythm of the pups in the field mouse, Mus booduga.* Madurai.

Medical Sciences

1. Bhattacharyya, Ratna. *Studies on the adsorption of choleraphage to Vibrio Choleroe.* Calcutta.

2. Chandra Kant. *Neuroclinical and neuro-pharmacological studies on Shuddha Kupilu (S. Nu-Vomica).* BHU. Dr. S.K. Bhattacharya.

3. Chowdhury, Mridul Kanti. *Multivariate analysis of infant and childhood diarrhoeal morbidity and mortality : A longitudinal study in rural Bangladesh.* BHU. Dr. V.M. Gupta.

4. De, Swapankumar. *Studies on gastric peroxidase.* Calcutta.

5. Dwivedi, Shridhar. *Prostaglandins and related neurohumors in ischaemic heart disease.* BHU. Prof. K.N. Udupa.

6. Mishra, Ashok Kumar. *Concept of embryology as described in ancient and modern literature.* BHU. Dr. L.P. Gupta.

7. Momin Ali Kazim Ali. *A study on standardisation aspects of ayurvedic drugs commonly used in primary health care.* Gujarat Ayurved. Prof. Gurudeep Singh.

8. Ratnam, Garigapati Venkata. *Chemical and biological studies on the flavonoids of Tephrosia fulvinervis and T. procumbens.* Andhra.

9. Tripathi, Ajay Kumar. *Gramin swasthya sanrakshan Prashasan : Prathamik swasthya kendra Charai Gaav prakhand Varanasi kee prashasanik sanrachana evam bhumik a per adharit ek somaj vaigyanik adhyayan.* BHU. Dr. K.P. Shukla.

10. Tripathi, Krishna Murari. *A study of personality and behaviour pattern profile in psychosomatic disorders and the role of certain therapeutic interventions.* BHU. Prof. R.H. Singh.

11. Vajayan, P. *Virological and epidemiological studies of poliomyelitis at Calicut.* Calicut. Dr. C.K. Jayaram Panicker.

Animal Husbandry

1. Bhatt, Vinod Kumar. *Disposition of gentamycin and ampicillin in buffaloes following intra-muscular and intrauterine administration in luteal phase of normal oestrus cycle and metritis.* HAU.

INDIAN COUNCIL OF MEDICAL RESEARCH

Applications are invited upto **25th May, 1988** for the following posts at the Council's Institutes/Centres :

(1) At the National Institute of Occupational Health, Ahmedabad.

(a) Senior Research Officer (Pesticide Residue)-One Post

(Scale of Pay : 3000-100-3500-125-4500)

Qualifications & Experience: Essential

1st Class M.Sc./Master's degree in Analytical Chemistry of Agriculture Chemistry with 6 years research/teaching experience in pesticide residue analysis work in human tissues, blood, milk, etc. or Ph.D. with 2 years experience in research/teaching.

Job Requirements

To plan and carry out biological monitoring of pesticides in workers exposed to pesticides and evaluation of pesticidal pollution.

(b) Deputy Director (Two Posts-one each at Regional Occupational Health Centre, Bangalore and Calcutta) (Scale of Pay : Rs. 4500-150-5700)

Qualifications & Experience : Essential

(i) M.D. in Medicine or PSM or Community Medicine or Ph.D. in Environmental Sciences with 10 years research/teaching experience in the discipline of Occupational Health & Hogiene (12 years experience in case of M.B.B.S./1st class M.Sc./Master's degree).

(ii) Original work as evidenced by publications.

Job Requirements

To provide high level leadership in formulation and implementation of research programmes & developments & activities related to occupational Health problem of the region.

(2) At the Cytology Research Centre, New Delhi

(a) Assistant Director (Cytopathology) One Post. (Scale of Pay : Rs. 3700-125-4700-150-5000)

Qualifications & Experience : Essential

(i) M.B.B.S./1st Class M.Sc. in Pathology/Cytopathology from a recognised University. Evidence of leadership with 12 years or M.D./Ph.D. with 10 years research/teaching experience in cytopathology.

(ii) Original work as evidenced by publishe papers.

Desirable

M.D./Ph.D. in Pathology with 10 years experienc Out of which 5 years experience in the field of Cytopa thology.

Job Requirements

(i) Planning & implementation of research pro gramme in the field of Cytopathology and relate Subject.

(ii) Diagnostic cytopathology in referral cases.

(b) Assistant Director (Clinic)-One Post (Scale of Pay : Rs. 3700-125-4700-150-5000)

Qualifications & Experience : Essential

(i) M.B.B S. from a recognised University. Evi dence of leadership with 12 years of M.D. with 1 years research/teaching experience in the field o gynaecology.

(ii) Original work as evidenced by publishe papers.

Job Requirements

(i) To co-ordinate the clinical aspects of maj multicentric studies such as cervical precancer & ca cer, and breast cancer undertaken by the Centre i collaboration with other institutes & hospitals.

(ii) To offer appropriate management to cervic precancer and cancer cases.

(iii) Participation in planning & administratio and other research programmes.

(iv) To look after the Administrative work of t division of Clinical research.

(c) Senior Research Officer (Cytopathology) —One Post

Scale of Pay : Rs. 3000-100-3500-125-4500)

Qualifications & Experience : Essential

M.B.B.S. with 6 years research/teaching experien in Pathology or M,D. with 2 years research/teachi experience in Pathology.

ob Requirements

(i) To assist and organise various research programmes in Cytopathology.

(ii) To assist in Conducting training programme and preparation of teaching material in cytopathology.

(3) At the Enterovirus Research Centre, Bombay
Deputy Director—One Post.
(Scale of Pay : Rs. 4500-150-5700)

Qualifications & Experience : Essential

M.B.B.S. with 12 years research experience in Virology (10 years for those with M.D. in Microbiology or Pathology)

Desirable

(i) Ability to guide postgraduate students.
(ii) Administrative ability.

(4) At the Malaria Research Centre, Delhi
Senior Research Officer (Malaria Control)—One Post.
Scale of Pay : Rs. 3000-100-3500-125-4500)

Qualifications & Experience : Essential

1st class Master of Science degree in Organic Chemistry with 6 years research/teaching experience or Ph.D. (Organic Chemistry) with 2 years research/teaching experience, preferably in protein chemistry and gene-cloning as evidenced by research publications.

Job Requirements: Selected candidate would be required to set up a laboratory of molecular cloning of genes for antigens from Indian isolates of human malarial parasites development of non-radioactive, NDA probes for parasite detection, participate in collaborative research activities, both national and international in various aspects of immunology and immunoprophylaxis against malaria, teaching and other duties assigned by the Director.

(5) At the Tuberculosis Research Centre, Madras.
Deputy Director (Clinic)—One Post
Scale of Pay : 4500-150-5700)

Qualifications & Experience : Essential

(i) M.B.B.S. with research experience in tuberculosis for 12 years (10 years for those with M.D. (Tubrculosis) or M.D. (Medicine).

(ii) Original work as evidenced by published papers.

Desirable

Experience in Conducting controlled Clinical trials in the treatment of communicable diseases.

Job Requirements

Controlled Clinical investigations in the treatment of Pulmonary Tuberculosis, Tuberculosis of Lymphadeitis, tuberculos meningitis, tuberculosis of the spine and leprosy. The incumbent will have to supervise the work in the clinic which undertakes the Clinical Studies in patients. He will also have to tour the districts in various States where 'Short Course Chemotherapy under District Tuberculosis Programme" is undertaken. He will be required, to plan guide and supervise the conduct of the clinical investigations and will have certain administrative responsibilities in the Clinic.

(6) At the Rajendra Memorial Research Institute of Medical Science, Patna.
Asstt. Director (Epidemiology)—One Post
Scale of Pay : Rs. 3700-125-4700-150-5000)

Qualifications & Experience : Essential

(i) M.B.B.S./1st class M.Sc. in Entomology/Medical Entomology with 12 years research/teaching experience in the field of parasitic disease of public importance ; or

(a) M.D. in PSM Medicine, or

(b) Ph.D. in Entomology/Medical Entomology with 10 years research or teaching experience in the above field.

(ii) Original work as evidenced by Publications.

Desirable

Experience in Epidemiological Research in Parasitic disease especially leishmaniasis.

(7) At the Regional Medical Research Centre, Dibrugarh.
Senior Research Officer Each in Pathology Microbiology, Epidemiology and Medicine.
Four Posts
(Scale of Pay : Rs. 3000-100-3500-125-4500)

Qualifications Experience : Essential

M.B.B.S./1st class M.Sc./Master's degree in related subject with 6 years research/teaching experience in the related field or M.D./Ph.D. in Pathology/Microbiology/Social & Preventive Medicine or Medicine with 2 years research/teaching experience.

Job Requirements

S.R.O. (**Pathology**): To plan and co-ordinate research projects on various problems involving Histopathology, Cytology and Haematology.

S.R.O. (**Microbiology**) : To Plan, organise carry out research work on problems involving microbiology, Virology, Parasitology and Mycology.

S.R.O. (**Epidemiology**) : To carry Epidemiological survey of Various diseases of the North Easter Region as and when necessary. To participate in planning, projecting and montoring of all research projec taken up by the Centre.

S.R.O. (**Medicine**) : To work as the Medica Officer of the Malaria Clinic of the Centre. To accompany as physician member of field team of Malari Research. To participate in planning multi-disciplinary research project in the Centre.

Age : Below 50 years for the posts of Deputy Director and below 45 years for the posts of Assistan Director, and Senior Research Officer. SC/ST candidates allowed relaxation in accordance with Govt. o India rules.

Allowances as per Central Govt. rules are admissible on the above pay scales.

Benefits of pension admissible. Private practice is not allowed However, NPA as per rules of th Council is admissible to medical graduates only. Candidates called for interview for the posts of Deput Director and Assistant Director will be paid fist class rail fare and for the posts of Senior Research Officer will be paid Second class rail fare by shortest route, on production of documents.

Applications from employees working in Central/State Govt. Deptts./Public Sector Undertakings an Govt. funded research agencies must be forwarded through proper channel.

Application forms can be obtained from the office of the Director General, Indian Council of Medica Research, Ansari Nagar, Post Box No. 4508, New Delhi-110 029. Forms duly completed should be sent to th Director General, Indian Council of Medical Research, Ansari Nagar, Post Box No. 4508, New Delhi-110 02 with a crossed IPO for Rs. 8/- payable to the DG, ICMR, New Delhi. SC/ST candidates are exempted fro this payment.

Incomplete and late application or without postal order will not be entertained. The name of th post and of the Institute/Centre must be indicated in the application form.

Separate application form should be submitted for each post with crossed I.P.O. for Rs. 8/- and fo each Institute.

Cable : **USOFORUM** *Phones* : **661103, 663998**

United Schools Organisation of India (Estd. 1951)

USO House, 6, Special Institutional Area,
Qutab Hotel Road, New Delhi-110067

President : **Ram Niwas Mirdha**
Secretary-General : **Jiya Lal Jain**

USO Trust, New Delhi, is looking for a capable person to organise and run short-term diploma courses in Pharmacy, Pharmacology, Laboratory Technician, X-ray Technician, and English language courses from the forthcoming academic year. He/She will be responsible for organising and running the courses, select staff and look after daily administration.

Teaching and administrative experience of at least 5 years is essential. Salary and perks according to university scales. Applications containing detailed biodata should be addressed to the Chairman, USO Trust, USO House, New Delhi-110067.

Ram Nath Tandon
ASSISTANT SECRETARY GENERAL

CLASSIFIED ADVERTISEMENTS

S.N.D.T. WOMEN'S UNIVERSITY

1, NATHIBAI THACKERSEY ROAD

BOMBAY-400 020

Advertisement No. 9

Dated : March 19, 1988.

Applications are invited in the prescribed forms available at the University Office between 10-30 a.m. to 2-30 p.m. from Monday to Friday and 10.30 a.m. to 12.00 Noon on Saturday, on payment of Rs. 5/- (M.O./Indian Postal Order/in Cash) for S.V.T. College of Home Science, Bombay-49, 2 (Two) Research Assistants for P.G. Dept. of Family Resource Management and 4 (four) Research Assistant for P.G. Dept. of Foods & Nutrition (under DRS Programme), on a temporary tenure basis.

Required Qualifications—Research workers and teachers having at least a second class Bachelor's and Master's degree in the above relevant subject/s.

Preference would be given to those who have/had teaching/research experience. Fixed Salary Rs. 1200/- p.m./ Rs. 1400/- p.m. depending upon experience and qualifications.

Apply on or before **15 days** from the date of this advertisement.

REGISTRAR

VIKRAM UNIVERSITY

UJJAIN

No. Dev/Estt/SS/88/29 Dated : 5.4.88

Applications, in prescribed forms, are invited for THREE READERS POSTS IN POLITICAL SCIENCE so as to reach the undersigned on or before **23rd May, 1988.**

Out of three posts one for production of teaching material-cum-translation and another in Political Theory & Analysis under the University Leadership programme of U.G.C. and the third post is a leave vacancy upto 30th July, 1988. In the U.G.C. pay scale of Rs. 1200-50-1300-60-1900.

The minimum essential qualifications of these posts are the same as prescribed by the University Grants Commission. The prescribed application form alongwith the details of qualifications etc., can be obtained from the undersigned on payment of Rs. 10.00 in person or by sending a Crossed Indian Postal Order payable to the Registrar, Vikram University, Ujjain (M.P.).

The candidates in employment should send their applications through proper channel. The candidates who desires the application form by Registered Post should send an additional amount of Rs. 7 00 for Registration Charges. All appointments will be on Two years probation in the first instance except on the leave vacancy. The Superannuation age is 60 years.

The University reserves the right to fill up or not to fill up any post and also call any candidate for interview. No T.A /D.A. will be paid for attending the interview, if called for.

G.S. Gautam
REGISTRAR

BHARATHIDASAN UNIVERSITY

TIRUCHIRAPALLI 620 024

Notification

Applications are invited for the following faculty positions.

Professors : in the scale of pay of Rs. 1500-60-1800-100-2000-125/2-2500 : Life Sciences (1), Social Sciences (1), Earth Sciences (1), Bio-Technology (1) and Educational Technology (1).

Readers : in the scale of pay of Rs. 1200-50-1300-60-1900 : Life Sciences (1). Earth Sciences (1), Bio-Technology (2) Educational Technology (2) and Academic Staff College (1).

Lecturers : in the scale of pay of Rs. 700-40-1100-50-1600 : Mathematics (1), Physics (1), Life Sciences (1), Social Sciences (1), Earth Sciences (3), Bio-Technology (4), Educational Technology (4) and Academic Staff College (1). Director of Physical Education (1)—in the scale of pay of Rs. 1200-50-1300-60-1900.

Computer Centre : Head of Computer Centre (1) and Systems Engineer (1) in the scale of pay of Rs 1100-50-1600.

Adult Education, Continuing Education and Extension :

Assistant Director (1) in the scale of pay of Rs. 1200-50-1300-60-1900.

** All scales of pay carry the usual allowances admissible as per rules and are likely to be revised as per the new U.G.C. scales of pay.

How to Apply : Application forms alongwith details of prescribed qualifications and instructions can be had from the Registrar, Bharathidasan University, Tiruchirapalli-620 024 by sending a written requisition with a self addressed oblong envelope (10" x 4") stamped to the value of Rs. 2.50 (Rupees two and paise fifty only), **within 10 days** from the date of this notification. The envelope requisitioning application forms should be superscribed as 'Faculty Positions'.

The University reserves the right to short-list the applications and also the right to fill or not to fill any or all of the above posts.

Prof. T.S. Shanmuga Sundaram
REGISTRAR

TECHNICAL TEACHERS' TRAINING INSTITUTE

SECTOR 26, CHANDIGARH

Advertisement No. 5/88

I. Applications are invited by the Principal in the prescribed form for the undermentioned posts :

1. **Professors (Rs. 1500-2500 unrevised)**

(i) Rural Development—(One)

(II) Entrepreneurship Development—(One)

2. **Assistant Professors (Rs. 1200-1900—Unrevised)**

(i) Electrical Engineering —(One)
(ii) Computer Science —(One)
(iii) Electronics & Communication—Engineering —(One)
(iv) Curriculum Development Centre —(One)

3. **Lecturers (Rs. 700-1600 unrevised)**

(i) Electrical Engineering —(One)
(ii) Entrepreneurship Development —(One)
(iii) Lecturer in Engineering in Co-ordination Cell —(One)

4. Senior Producer (ETV) (Rs. 3000-4500—Revised) —(One)

The positions are temporary in the first instance but are likely to continue.

II. Qualifications & Experience (In Brief) :

1. **Professors :** Doctorate degree/Ist Class Master degree in the relevant field with 8 to 15 years experience.

2. **Assistant Professors :** Doctorate degree/Ist Class Master degree in the relevant field with 5-10 years experience.

3. **Lecturers :** Ist Class Master degree in the relevant field. Qualifications are relaxable to Ist Class Bachelor degree in Engineering.

4. **Senior Producer :** A degree in Science/Arts/Engineering or Diploma in Direction or Production of Film/TV with 7 years experience in Film/TV Production/Script Writing or a Diploma in Engineering with 10 years experience in the line.

III. General Note for all Posts Regarding Relaxation of Qualifications/Experience etc.

1. Qualifications in lieu of longer experience and experience in lieu of higher qualifications may be relaxed by the competent authority in case suitable candidates with prescribed qualifications and experience are not available.
2. At present the pay scales of faculty (Posts at Sr. Nos. 1-3) are unrevised UGC scales. These are likely to be revised in near future.
3. The total emoluments at the minimum of the scales including HRA are approximately Rs. 3610/-, 3197/-, 2139/- & 3710/- respectively.
4. All posts carry allowances as applicable to Central Govt. employees stationed at Chandigarh. In addition LTC, GPF-cum-Pension-cum-Gratuity/CPF-cum-Gratuity; Medical reimbursement and leave are admissible as per rules. Higher start of pay is admissible for deserving candidates. In case candidates are not found suitable for these posts, they can be offered lower posts, if willing to accept. Second Class to and fro railway fare is admissible for attending the interview.
5. The upper age limit is 48 years for posts at Sr. Nos : 1, 2 & 4 and 35 years for post at Sr. No : 3.
6. Application forms and detailed information regarding qualifications, experience and job description etc. can be obtained from the **Senior Administrative Officer** of the Institute on requisition by sending a self-addressed unstamped envelope (28 cm x 12 cm) indicating the name of post at the top. Applications complete in all respect should reach the Institute on or before **17th May 1988.**

C.L. Chadha
SENIOR ADMIN. OFFICER

SAURASHTRA UNIVERSITY

Applications in the prescribed forms are invited for the Post of Professor of Economics. Application forms alongwith detailed requirements of qualifications, experience and other necessary details regarding this post will be available from the Registrar, Saurashtra University, University Campus, Kalawad Road, Rajkot-360005 on sending a self-addressed envelope of the size 23 x 11 cms with postage stamps worth Rs. 4.20. Applications in seven copies should reach this office on or before **5-5-1988** alongwith crossed Indian Postal Order worth Rs. 10.00. Qualifications, experience as mentioned in the details to be supplied with application form will be considered final. The post is permanent. Age ordinarily not exceeding 55 years. The age, educational qualifications and experience may be relaxed in suitable case.

Pay Scale : Rs. 1500-60-1800-100-2000-125/2-2500.

REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY. BOMBAY-76

P.O IIT, POWAI, BOMBAY-400 076
Advertisement No. C-203/87-88.

Applications on plain paper are invited from the citizens of India for the following post in the Institute. Persons employed in the Government/Semi-Government Organisation or Educational Institution should apply through their employer. Perference will be given to candidates belonging to Scheduled Caste/Scheduled Tribe Community and Ex-serviceman. Age below 35 years. (Relaxable upto 5 years for Govt. servants and SC/ST candidates). The post carries allowances such as D.A., C.C.A. etc. as per the rules of the Institute (as admissible to Central Govt. employees stationed at Bombay).

Post : HINDI OFFICER—1 Post.

Scale of Pay : Rs. 2000-60-2300-EB-75-3200-100-3500. (Total emoluments on the minimum of the pay scale Rs. 2810).

Qualifications :

(I) Essential :

Recognised Master's degree or equivalent, in Hindi with English as a subject at degree level **OR** Master's degree or equivalent in English with Hindi as a subject at the degree level **OR** Master's degree or equivalent in any subject with Hindi and English as subjects at the degree level **OR** Master's degree or equivalent in any subject with Hindi Medium and English as a subject at the degree level **OR** Master's degree or equivalent in any subject with English Medium and Hindi as a subject at the degree level.

(II) Five years' experience of terminological work in Hindi and/or translation work from English to Hindi or vice-versa preferably of technical or scientific literature **OR** Five years' experience of teaching, research, writing or journalism in Hindi.

Note : 1. Qualifications are relaxable at the discretion of the Institute in case of candidates otherwise well qualified.
2. The qualifications regarding experience is/are relaxable at the discretion of the Institute in the case of candidates belonging to the Scheduled Caste and Scheduled Tribes.

Desirable :

Knowledge of Sanskrit/or a Modern Indian Language. Administrative experience.

Experience of organising Hindi Classes or Workshops for noting and drafting.

Applications neatly typed on plain paper alongwith a crossed Indian Postal Order for Rs. 3/- (No application fee for SC/ST candidates) payable to the Registrar, IIT Bombay and attested copies of all certificates/testimonials, strictly as per the format given hereunder should reach the Registrar, Indian Institute of Technology, P.O. IIT, Powai, Bombay-400 076 on or before **2nd May, 1988.**

Application Format :

(1) Name (2) Father's / Husband's name (3) Date of Birth (4) Complete address (5) Whether SC/ST (6) Academic & Professional qualifications : Exams. passed, name of the University/Institution, year, medium of instructions, subjects taken and marks obtained. (7) Experience (8) Extra curricular activities (9) Signature of the applicant.

REGISTRAR

BHOPAL UNIVERSITY, BHOPAL

Advertisement No. 1/88

Dated the 25.3.1988

Applications on plain paper (8 copies) are invited for the following posts in the University Teaching Departments so as to reach the Registrar, Bhopal University, Bhopal on or before **02.5.1988.** Application should be accompanied with the crossed IPO for Rs. 10/- in favour of Registrar, Bhopal University, Bhopal :

Professor—1500-2500—One each in (1) Commerce, (2) Law, and (3) Mathematics and Computer Science.

Reader—1200-1900—One each in (1) Sociology (2) Geology (3) Microbiology (4) Pol. Sc. (Correspondence Course)

Lecturer—700-1600—One each (i) Law (2) Commerce (3) Comparative Language and Culture (4) Regional Planning and Economic Growth (5) Sociology (6) Microbiology (7) Bio-Science (8) Genetics (9) Economics (Correspondence Course) and two each in (1) Psychology (2) Limnology (3) Mathematics and Computer Science.

Qualification and Experience : As prescribed by the University Grants Commission, New Delhi for Professor, Reader and Lecturer.

Specialization :—(1) Professor of Commerce—Banking. (2) Professor and Lecturer of Law—Constitutional Law and Administrative Law with teaching experience Labour Law. (3) Professor of Mathematics and Computer Science—Strong background of both Computer Science and Mathematics. Software development will be preferred. (4) Reader and Lecturer in Sociology—Specialization in any one of the following areas : Modernization, Studies in Women, Sociology of Environment, Rural Development. (5) Reader in Geology—Remote sensing, Geomorphology. (6) Reader in Microbiology—Fermentation Technology/Geotechnology/Microbial Genetics/Microbial Physiology and Bio-Chemistry. (7) Lecturer in Commerce—Applied Economics and Management. (8) Lecturer in Mathematics and Computer Science—M. Tech. (Computer Science) / M. C. A. / M. Sc. (Computer Science) with Higher level language systems programming. Candidates with strong background of Mathematics will be preferred. (9) Lecturer in Comparative Language and Culture—Master's Degree in Sanskrit/Pali/Prakrit/Linguistic with syecialization in Linguistic. (10) Lecturer in R.P.E.G.—Master's Degree in Economics with specialization in quantitative economics. (11) Lecturer in Bio-Science—M.Sc. in any branch of Life Science. Preference will be given to those who have Master's Degree in Plant Science or Animal Science. (12) Lecturer in Genetics—Population Cytogenetics/Bio-Statistics/ Molecular Genetics.

Note : (1) The post of Reader in Pol. Sc. (Correspondence Course) is upto 05.09.89 and likely to be continued.

(2) For the posts of Reader in Sociology and Reader in Microbiology, those who have applied in response to advertisement No. 4/86 dt. 8.1.87 need not apply.

(3) No TA/DA will be admissible to the candidate if called for interview. The Selection Committee may consider the candidature of any eminent/suitable person in absentia.

H.K. Bagga
REGISTRAR

DAYALBAGH EDUCATIONAL INSTITUTE

(Deemed University)

DAYALBAGH, AGRA-282005

Applications are invited in the prescribed form for the following posts :

Teaching Posts :

I. **Readers :** One each in—

1. Computer Science & Applications
2. Botany (Plant Physiology/Bio-Chemistry/Eco-Physiology)
3. Zoology (Cytogenetics/Cell Biology/Entomology)

II. **Lecturers :** in—

1. Accountancy & Law (Commerce)—1
2. Applied Business Economics (Commerce)—1
3. Business Administration (Commerce)—1
4. Home Science (Textile & Clothing Construction)—1
5. English—1
6. Mathematics (Faculty of Science) (Pure Mathematics/Computer Science & Applications)—3
7. Engineering Mathematics (Advanced Statistics, calculus of variation, Finite Element Method)—1
8. Rural Development (Home Science with specialization in Extension/Nutrition/Child Development/Textile & Clothing)-1
9. Computer Science & Applications—2
10. Education (English/Home Science/Commerce/Hindi/Library Science/Economics)—6
11. Mechanical Engineering—1
12. Electrical Engineering—1
13. Drawing & Painting—1
14. Music (Sitar)—1 (leave vacancy)
15. Education (Botany)—1 (Leave vacancy)

III. **Teaching Assistant** (Mechanical Engineering)—1

Pay Scales: (Rs) Readers : 1200-1900; Lecturers : 700-1600; For Teaching Assistant Rs. 1000/- (fixed) for graduates in Engineering with atleast 70% marks and Rs. 1100/- for postgraduate with I Division. Allowances as admissible under rules. Pay Scales are likely to be revised soon.

Total Monthly Emoluments (Rs) Readers: 3192/-; Lecturers : 2173/-;

Note : 1. Prescribed application forms alongwith details of minimum qualifications can be had from the office of the Registrar of the Institute on payment of Rs. 10/- by cash at counter or by sending a bank draft of the required amount accompanied by a self addressed and stamped envelope of the size 22 x 10 cm with stamps worth Re 1/- for ordinary post or Rs. 6/- for registered post.

2. Applications complete in all respects alongwith enclosures and registration fee of Rs. 10/- should reach the Registrar of the Institute latest by **24 May, 1988.**

3. All payments be made either by cash at counter or by bank draft drawn in favour of 'DAYALBAGH EDUCATIONAL INSTITUTE' payable at Agra.

4. Separate application be made for each post.

5. The number of posts may vary according to need.

6. Government / Semi-government employees should apply through their employers or produce a no objection certificate at the time of the interview.

7. SC/ST candidates will be preferred if found otherwise suitable.

8. Incomplete applications and those not accompanied by testimonials and/or registration fees will not be considered.

9. It is likely that some of the posts may not be filled-in immediately.

10. Superannuated persons are not eligible for employment.

REGISTRAR

काशी विद्यापीठ, वाराणसी

विज्ञापन संख्या-1/1988-89

दिनांक 4 अप्रैल, 1988

अधोलिखित पदों पर नियुक्ति हेतु निर्धारित प्रपत्र पर आवेदन पत्र आमंत्रित किये जाते हैं :—

1. प्रोफेसर—एक पद—स्थायी—समाज-शास्त्र—विशेषीकरण-अपराध शास्त्र

   वेतनमान : रु० 4500-150-5700-200-7300

2. रीडर

(1) राजनीतिशास्त्र-एक पद-स्थायी

(2) वाणिज्य-एक पद-स्थायी

(3) कम्प्यूटर साइंस एण्ड एप्लीवेशन-एक पद-अस्थायी-परन्तु चलते रहने की सम्भावना है।

वेतनमान : रु० 3700-125-4950-150-5700

3. लेक्चरर

(1) कन्नड़-एक पद-अस्थायी-परन्तु चलते रहने की सम्भावना है।

(2) कम्प्यूटर सांइस-एण्ड एप्लीकेशन-दो पद-अस्थायी-परन्तु चलते रहने की सम्भावना है।

वेतनमान : रु० 2200-75-2800-100-4000

4. सिलाई अध्यापिका—एक पद-स्थायी

   वेतनमान : रु० 354-10-424-10-454-12-514-12-550

5. टेक्निकल असिस्टेंट—

   कम्प्यूटर साइंस एण्ड एप्लीकेशन-दो पद-अस्थायी-परन्तु चलते रहने की सम्भावना है।

   वेतनमान : रु० 570-25-770-30-980-30-1100

विशेष :—विज्ञापन संख्या 4/1987-88 के अधीन कुल क्रमांक 2(3)3(2)और 5 पर तथा विज्ञापन संख्या 3/1987-88 के अधीन क्रमांक 3(1) पर उल्लिखित पदों के लिये जो व्यक्ति पहले आवेदन पत्र दे चुके हैं उन्हें पुनः आवेदन करने की आवश्यकता नहीं है।

न्यूनतम अर्हताएं :

क्रमांक 1,2,3 में उल्लिखित पदों की अर्हता विश्वविद्यालय अधिनियम एवं परिनियम में विहित योग्यता एवं समय समय पर संशोधित योग्यता के अनुसार होगी।

क्रमांक 4 पर उल्लिखित सिलाई अध्यापिका पद की न्यूनतम अर्हता इण्टरमीडिएट तथा किसी मान्यता प्राप्त संस्थान से सिलाई, कढ़ाई, बुनाई में डिप्लोमा। अनुभवी महिला को वरीयता दी जायगी।

क्रमांक 5 पर उल्लिखित टेक्निकल असिस्टेन्ट पद की अर्हता एम०ए०/एम०एस० सी० गणित/भौतिक शास्त्र के साथ कम्प्यूटर सिस्टम के संचालन का ज्ञान तथा 3 वर्ष का अनुभव।

सामान्य :

उपर्युक्त पदों पर नियुक्त व्यक्तियों को समय समय पर शासन द्वारा स्वीकृत मंहगाई भत्ते एवं अन्य भत्ते देय होंगे। हिन्दी का ज्ञान आवश्यक है। जो अभ्यर्थी कहीं सेवा में हो उन्हें आवेदन पत्र अपने वर्तमान सेवा योजक के माध्यम से भेजना आवश्यक है। प्रत्येक पद के लिये अलग-अलग निर्धारित आवेदन पत्र के साथ अंक पत्रों, उपाधियों तथा अनुभव प्रमाणपत्रों की प्रमाणित प्रतियों सहित, जिनका उल्लेख निर्धारित आवेदन पत्र पर किया गया हो, "कुलसचिव, काशी विद्यापीठ, वाराणसी-221 002" को इस प्रकार प्रेषित किया जाय कि सोमवार दिनांक 9-5-1988 अथवा उसके पूर्व अवश्य प्राप्त हो जाय। दिनांक 9-5-1988 के पश्चात प्राप्त आवेदन पत्रों पर विचार नहीं किया जायेगा।

निर्धारित आवेदन-पत्र काशी विद्यापीठ के वित्त विभाग के कैशियर के पास रु० 15/- (रुपये पन्द्रह मात्र) नकद जमा कर प्राप्त किया जा सकता है। बाहर के अभ्यर्थियों को निर्धारित आवेदन पत्र मंगाने हेतु एक आवेदन पत्र के साथ रु० 15/- (रुपये पन्द्रह मात्र) का बैंक ड्राफ्ट अथवा पोस्टल आर्डर जो "वित्त अधिकारी, काशी विद्यापीठ, वाराणसी को देय होगा तथा टिकट एवं पता लिखा लिफाफा (साइज 23 × 10 से०मी०) कुलसचिव, काशी विद्यापीठ, वाराणसी को भेजना आवश्यक है। धनादेश (मनीआर्डर) किसी भी दशा में स्वीकार नहीं किया जायेगा।

उपर्युक्त पदों के लिये अन्य बातें सामान्य होने पर अनुसूचित जाति या अनुसूचित जनजाति का कोई अभ्यर्थी उपयुक्त पाया जाता है तो उसे वरीयता दी जायगी। जो अभ्यर्थी अनुसूचित जाति अथवा अनुसूचित जनजाति के हों उन्हें आवेदन-पत्र में उसका उल्लेख करना चाहिये तथा जिस जिले के निवासी हो उस जिले के जिलाधीश का प्रमाणपत्र पुष्टि हेतु संलग्न करें।

साक्षात्कार के लिये बुलाने अथवा न बुलाने का अधिकार काशी विद्यापीठ के पास सुरक्षित है।

बद्रीनारायण सिंह
कुलसचिव

S.N.D.T. WOMEN'S UNIVERSITY

1, NATHIBAI THACKERSEY ROAD, BOMBAY-400 020

Advertisement No. 8 **Dated : March 25, 1988**

Applications are invited in the prescribed forms available at the University Office between 10-30 a.m. to 2-30 p.m. from Monday to Friday and 10-30 a.m. to 12.00 Noon on Saturday, on payment of Rs. 5/- (M.O./Indian Postal Order/in Cash) for the following posts, to be filled in at the University Departments and its conducted Institutions at Bombay and Poona, so as to reach the undersigned on or before **fifteen days** from the date of its advertisement :

Sr. No.	Post and Name of the Dept./ Institution	No. of Post	Post under Reserved Category	Medium of Teaching
A.	**SNDT WOMEN'S UNIVERSITY LIBRARY, BOMBAY-20**			
1.	Deputy Librarian	ONE TEMP	—	—
2.	Senior Library Assistant	ONE PRM	—	—
*3.	Junior Library Assistant	FOUR PRM ONE TMP	ONE (first time Adv.)	— —
4.	Assistant Accountant	ONE TMP	—	—
	Under Central Equipment Facility Unit, Bombay-20			
5.	Lecturer (Instrumentation)	ONE PRM	—	ENG
	Under Information Centre, Bombay-20 (Tenure upto March 1990)			
6.	Deputy Librarian	ONE TMP TENURE	—	—
7.	Research Assistant	ONE TMP TENURE	—	—
8.	Data Entry Assistant	ONE TMP TENURE	—	—
9.	Typist (with experience in Data Entry Assistant)	ONE TMP TENURE	—	—
*10.	Attendant (with experience in Hardware maintenance)	ONE TMP TENURE	ONE (First time Adv.)	—
B.	**SNDT WOMEN'S UNIVERSITY EXTN. LIBRARY, BOMBAY-49**			
1.	Deputy Librarian	ONE PRM	—	—
C.	**SNDT WOMEN'S UNIVERSITY BRANCH LIBRARY, POONA**			
1.	Junior Library Assistant	TWO PRM	—	—
D.	**SHPT, SCHOOL OF LIBRARY SCIENCE, BOMBAY-20**			
1.	Lecturer in Library Science	TWO PRM	—	—
E.	**P.G. DEPT. OF LIBRARY SCIENCE SHPT, SCHOOL OF LIB. SCIENCE, BOMBAY-20**			
1.	Reader	ONE PRM	—	ENG

Minimum qualifications, salary scales, etc. of the teachers are as per approved UGC scales and qualifications. Applications of Scheduled Castes/Tribes/ Nomedic Tribes/DNT, will be considered as per Government Directives. *Indicates post under reserved category and will be filled by SC/ST/ONT candidates only. Incomplete applications & applications on a plain paper will not be considered.

REGISTRAR

HIMACHAL PRADESH KRISHI VISHVAVIDYALAYA

'Recruitment Branch'

PALAMPUR, HP.

Advt. No. 3/88

Applications are invited for the following posts on the prescribed form obtainable from the office of the undersigned personally or by making written request accompanied by self-addressed envelope 23 x 10 cms bearing stamp of Rs. 6.00. The detailed instructions regarding qualifications and other conditions will be supplied alongwith the application form. The cost of application form for all posts from Sr. Nos. 1 to 25 is Rs. 10/- (Rs. 5/- for SC/ST candidates subject to production of proof therefor) and that for post at Sr. No. 26 is Rs. 5/- (Rs. 2.50 for SC/ST candidates subject to production of proof therefor), which should be sent through IPO(s), payable to Comptroller, HPKVV, Palampur at HPKVV campus Post Office. The application form duly completed should reach the Registrar, HPKVV, Palampur-176 062 (HP) by **9.5.1988.** Request for supply of application form without requisite fee shall not be entertained.

Candidates applying from abroad may send their applications on plain paper giving full particulars of date of birth, examinations passed from High school onwards with division and percentage of marks obtained in various examinations, teaching/research/extension education experience with a list of publications, if any, so as to reach the Registrar, HPKVV, Palampur by **9.5.1988 :**

Posts in the Scale of Rs. 1500-2500 (UGC) plus rent free unfurnished residential accomomodation at the campus of the University or in lieu thereof an allowance of Rs. 250/- per month :

1. Director of Research (1)
2. Dean, College of Agriculture (1)
3. Dean, College of Veterinary & Animal Sciences (1)

Post in the Scale of Rs. 1500-2500 (UGC) plus rent free unfurnished residential accommodation at the campus of the University :

4. Students Welfare Officer (1)

Post in the scale of Rs. 1500-2500 (UGC) :

5. Professor of Vegetable (1)

Posts in the scale of Rs. 1200-1900 (UGC) :

6. Associate Professor of Home Science Extension Education (1)
7. Associate Professor of Child Development (1)
8. Research Officer (Yak) (1)
9. Associate Professor of Veterinary Anatomy (1)
10. Associate Professor of Veterinary Pharmacology (1)
11. Associate Professor of Veterinary Pathology (1)
12. Associate Professor of Veterinary Gynaecology (1)
13. Associate Professor of Animal Breeding (1).

Posts in the scale of Rs. 700-1600 (UGC) :

14. Assistant Professor of Microbiology (1)
15. Assistant Professor of Extension Education (1)
16. Assistant Professor of Agricultural Engineering (1)
17. Assistant Scientist of Maggar Bamboo (1)
18. Assistant Scientist of Agro-Meteorology (1)
19. Assistant Vegetable Breeder (1)
20. Assistant Professor of Veterinary Physiology (1)
21. Assistant Professor of Veterinary Parasitology (1)
22. Assistant Scientist of Yak Genetics (1)
23. Assistant Farm Manager (Dairy Farm) (1)

Post in the scale of Rs. 700-1300 (UGC) :

24. Assistant Scientist (Fisheries) (1)
25. Press Manager (1)

Post in the scale of Rs. 510-880+Rs. 30—S.P. (State scale)

26. Junior Scale Stenographers (English/Hindi) (9) Reservation SC—4, SC (IRDP)—1, S.T.—1, ST(IRDP)—1, Ex-Serviceman (IRDP)—1 & General—1.

Applications complete in all respects, with attested copies of testimonials and list of publication, etc. should reach the Registrar, HPKVV, Palampur-176 062 (HP) by 9.5.1988.

R.C. Kapil
REGISTRAR

STRUCTURAL ENGINEERING RESEARCH CENTRE
GHAZIABAD (UP)
(COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH)

Advertisement No. 2/88

Security Assistant : 1 Post. Scale Rs. 1640-60-2600-EB-75-2900. (Revised)

Educational Qualifications

Bachelor's Degree from recognised University (relaxable in Exceptionally deserving Cases) with at least 5 yrs. experience relating to management of Security, Fire Fighting/Prevention and allied jobs. Should be able to handle Fire Arms. Ex-Army/other para military organisation persons preferred.

Job Requirement : The selected candidate will be required to look after the Security arrangements of the SERC installation, premises, residential site and other residential accommodation of SERC at Ghaziabad and carry out deployment and supervision of Security staff. He will also be responsible for handling and maintenance of Fire Fighting appliances of the Centre.

Age Limit : 28 yrs., relaxable in case of SC/ST Candidates and Ex-Servicemen as per rules. No age bar for CSIR employees.

Prescribed application form for the above post are obtainable (free of cost) on or before 25.4.1988, from the Administrative Officer, S.E.R.C., Post Bag No. 10, Ghaziabad. Request for application forms must indicate the number of advertisement, particulars of the post applied for (speciality and level) and full address of the applicant in block letters with Pin Code alongwith a self-addressed envelope of size 28 x 13 cms duly affixed with postage stamps worth Rs. 1.80.

Complete application forms alongwith application fee of Rs. 8/- (no fees is required in case of SC/ST candidates) in the form of Crossed Postal Order drawn in favour of the Director, S.E.R.C., Ghaziabad should reach the Administrative Officer, S.E.R.C., Post Bag No. 10. Ghaziabad by 12.5.1988. Application from employees working in Govt. Deptt., Public Sector Organisation and Gov. funded agencies will be considered only if forwarded through proper channel and with the clear certificate that in the event of selection of the candidate he/she will be relieved within one Month of receipt of the appointment order. Incomplete applications as well as those received after the due date are liable to be rejected. Those who are called for interview will be paid travelling allowance to the extent of a single second class return rail fare (Mail or Express) by the shortest route as per rules.

The selected candidates will be liable to serve, if so required in any defence service or post connected with the defence of India for a period of not less than four years before attaining the age of 40 yrs.

Candidates are required to mention clearly on the application if any of their close relative is working in SERC, Ghaziabad/Roorkee and if so, full details thereof.

Since it is not possible to call all the eligible candidates for interview/personal discussion, the applications shall be shortlisted for the purpose and the decision of the SERC in this behalf will be final and binding on all concerned.

CANVASSING IN ANY FORM AND/OR BRINGING IN ANY INFLUENCE POLITICAL OR OTHERWISE WILL BE TREATED AS DISQUALIFICATION FOR THE POST. INTERIM ENQUIRIES WILL NOT BE ATTENDED TO.

Printed & Published by SUTINDER SINGH, on behalf of the Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi-110002. Grams : ASINDU. Phones : 3315105, 3313390, 3312305, 3310059 and 3312429 Telex 31 5578 AIU IN

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University
News

MONDAY, APRIL 25, 1988 Rs. 1.50

AIU Seminar on Implementation & Monitoring of National Policy on Education. From left to right: Prof. S.K. Agrawala, Secreta
AIU, Prof. N.M. Swani, Director, IIT, Delhi, Prof. Satya Bhushan, Director, NIEPA and Dr. V. Natarajan, Director (Research), AI

Council of Scientific and Industrial Research

ADVERTISEMENT NO. 7/88

CSIR is seeking to appoint a Scientist 'F' for its National Aeronautical Laboratory (NAL), Bangalore. NAL is the premier research Laboratory in India in the field of aerospace engineering with first rate facilities and expertise in the field of aerodynamics Fluid mechanics, Materials science, Propulsion, Structural sciences, and Systems engineering. The principal supportive facilities available at NAL include (a) an excellent library, (b) a Computer Centre with a Sperry Univac 1100/60-HI System with a 524-kilobyte memory and with multi-programming and time sharing facilities, (c) a National Trisonic Aerodynamic Facility (NTAF) with a series of wind tunnels, and (d) a 24-Actuator Computer Controlled Full-scale Fatigue Test Facility.

Current R&D thrust areas of NAL include Light Combat Aircraft, Computer simulation, Fatigue and fracture studies of aircraft frames, failure analysis and aero-elasticity.

JOB REQUIREMENT

This is a senior research position and the incumbent will be required to provide high level leadership to formulate, plan, co-ordinate and guide R&D activities in the field of aerospace systems, oriented towards the development and testing of aeronautical and aerospace systems. The candidate should have experience with :

— modern aerospace systems including measurement systems and flight control systems, oriented towards fly-bywire systems,

— electronics specially of sensors and digital data acquisition and telemetry systems,

— electro-pneumatic transducers for high intensity acoustic testing of aeronautical and aerospace vehicles.

QUALIFICATIONS

The candidate must have high academic qualifications with specialization in measurement systems and electrical engineering. Proven capability and long R&D experience in establishment of large aerospace systems and ability to guide research projects are essential. Adequate high quality research publication work is also desirable.

This is a contractual appointment for a period of six years in the scale of pay of Rs. 5100-150-5700-200-6300 plus allowances as admissible. Consultancy is permitted with a ceiling of Rs. 50,000/-on annual remuneration receivable. Residential accommodation would be provided in accordance with the rules.

A duly constitued 'Screening Committee' will decide on the number of Scientists to be invited to meet the full Selection Committee. The decision of the Council in this behalf will be final. Applications from employees working in Govt. Departments, Public Sector Organisations and Govt funded research agencies will be considered only if forwarded through proper channel and with a clear certificate that the applicant will be relieved within three months of receipt of the appointment orders.

Standard proforma for submitting the curriculum vitae and the literature about the laboratory can be had, on request, from the Joint Secretary (Administration), CSIR, Rafi Marg, New Delhi-110001. The last date for receipt of curriculum vitae is **31.5.1988**. Further information, if required, can be had from the Director, National Aeronautical Laboratory, Bangalore-560 017.

UNIVERSITY NEWS

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Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association.

Editor :

LIBRARY & DOCUMENTATI
UNIT
10 MAY 1988
C. F. T. R. I., MYSOR

Indian Traditions and Creation of an Indian Identity

B. Sheik Ali*

The main objective of any university system is not merely to acquire, preserve, impart and extend knowledge but also to preserve cultural traditons, promote basic human values, train for living together, and enrich the quality of life. A university should foster what is called "enculturation process", which means our alumni should be cultured, creative and committed to resolve the crisis of present-day values. They should be able to reflect on the real purpose of life, enjoy and appreciate the beneficence of nature, and to be able to integrate the best of the past with the finest of the present to build a glorious future. Nations are made by artists and thinkers, by saints and scientists and by the struggling masses of men and women. Fortunately, in the realm of knowledge and wisdom Indian traditions are so rich as to intoxicate any Indian with just pride.

We have to become increasingly conscious of the cultural heritage of the past. This awareness is useful to us from three different standpoints, historical, philosophical and political. Historically speaking, Indian philosophical traditions are the oldest that have survived to this day. They witnessed a process of continuous development in history. They are concerned with man's relation to the universe, the nature of reality, and man's place therein. Indian traditions throw much light into the inner nature of man, which can be classified as a study of "man universal". It is man's mind and soul at their best in philosophy and religion. In Indian system of thought there is great sublimation of man's intellect which has never been surpassed. This rich cultural tradition every Indian should know.

Secondly, philosophically our ancients have contributed much to the pursuit of truth. Philosophy deals with such abstract concepts as human soul, ultimate reality, truth, beauty, value, honour, virtue, morality and so on—concepts which are as relevant today as in the past. Our traditions have done much to understand the meaning of our ideas, the synthesis of the concepts that elude explanation, and the search for the good things of life. These traditions have thrown deep insight into the doctrine of ideas, causality, natural laws, behavioural pattern, regularities and direction of development, law and the ideal and a host of other concepts that have a direct link with our everyday life. Our ancients have synthesised ideas to arrive at broad conclusions, which have resulted in several systems of philosophy, which are regarded today as the precious treasures from the past.

Thirdly, politically and socially as well, Indian traditions deserve deep study. Humanity is after all one, and the current of Indian thought cuts across the barriers of time, region and race. Political and social unity is impossible without a clear understanding of our roots. Social and political conditions do revolve on spiritual and philosophical ideas of any society. It is to philosophy or man's rational thinking that we have to turn for harmony, unity and peace in any society. Perhaps no society is in greater need of such rational thinking than Indian society at this juncture. The profundity of Indian traditions and thought has the potentiality to excite interest and unity even at the global level, as the parameters of Indian traditions are intellectual, which alone move the wheels of human progress. A unified nation, much less a unified world, is a dream without spiritual and intellectual awareness in the hearts and minds of men. Indians have offered that thought process which sustains mutual harmony and understanding, if that thought is correctly explained and interpreted.

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Having explained the value of Indian traditions, let us proceed to examine their contents. The major thrust of our traditions is an attempt to understand the mysteries of this universe. Our sages were excited with poetic imagination to burst into lyrics at the wonders of this universe. The mystery of life, the purpose and meaning of life, the immensity of this universe, the uniqueness of its creation, the problems of life and death and such other concepts engaged the attention of our rishis. It was the awe and the wonder of the natural phenomena that was at the root of their inspiration. Even the names of the deities, Indra, Varuna, Mitra, Aditi, Rudra and so on suggest the link of thought with nature. Surya (sun), Prithvi (earth), agni (fire), apas (water), vayu (wind), usha (dawn) are all in the same chain of man's quest to know the value, attributes and the causation of the several elements of nature. Qualities which emphasise particular aspects of natural phenomenon attracted special attention to gain the rank of independent deities. Abstract qualities such as *sraddha* (faith), *manyu* (anger), *gandharva* (fairies), *apsaras* (angels) also became the part of Indian traditions.

Indian traditions are pragmatic as well. They attempted to understand such issues as life and death, peace and war, power and authority, love and sex, family and state, and a host of such other problems. Indian mind tried to comprehend the outer world, the phenomena of nature, as an essential aspect of human intelligence. Indian traditions should be viewed in a different light from that of the western traditions. Our ancients viewed nature or the universe not merely as beautiful product of art created not as a mere matter of chance, but for a purpose designed according to divine law, so that man could take nature as the model and mould his life to lift himself to higher plane. Truth, goodness and beauty are regarded in Indian traditions as transcendental. Again, man was central in the thinking of our sages, who regarded him as the measure of all things. Our sages reflect on everything in the heaven, the empty space, the mother earth, the father sky, the lighted sun, the circling years, the countless ages, and the cosmos beyond the imagination of man.

What is important to remember is that beneath the mythology and the traditions lie concealed profound thoughts. The Indian legends, traditions and myths may appear absurd to an unreflective person, but they do contain a new light, and a new beauty to a reflective mind. He would be impressed by the imaginative faculty. As Jawaharlal Nehru rightly put it, "Indian mythology is richer, vaster, very beautiful and full of meaning. I have often wondered what manner of men and women they were who gave shape to these bright dreams and lovely fancies, and out of what gold mine of thought and imagination they dug them". (*Discovery of India*, p. 78). When we consider the age of their composition, the social background of the people, and the level of thinking in other regions of the world, we cannot but appreciate the knowledge and wisdom of our people.

Indian traditions stand for universalism, humanism, eclecticism and liberalism. The greatness of Indian mind is its ability to reconcile the irreconcilable, the ability to absorb every creative idea, the capacity to accommodate every shade of thought. An example would explain the point better. Rig Veda speaks of the plurality of gods, and yet it emphasises on one God. When worship is offered from among many gods t one God, He becomes the Chief God, the Creator, the Preserver, the Sustainer and the Judge of this Universe The attributes of creation, preservation and judgemen (destruction) were ascribed to different gods, Brahma Vishnu and Shiva, and yet it was felt that these power were originally connected one with the other, an hence they cannot be separated. Logically it follow that this must be something supreme over this Trinity and hence by implication the concept of the oneness o God is established. The tendency of polytheism exist simultaneously with monotheism or the unity of God This attribute of All-Powerful, the Supreme Reality the Sublime Truth, the Self-existing Eternal Creator Protector and Sustainer of everything in the Univers was accorded to **Prajapati**, the Lord of the Creatures **Vishvakarma**, the world-maker. The concept of **Rit** or the order of the world supports this idea. The poin to remember is that Indian mind is at its best in recon ciling the opposite view—endless variety of the worl suggests numerous deities, yet the unity of the worl implies one deity, and both these concepts exist in th Indian traditions.

What is significant in Indian tradition is the libera outlook in which there is room for every shade o thought. Even the notion of a "Church" is alien t Indian thought, although India has throughout bee intensely religious. Our traditions are superb i absorption, assimilation and adaptation. Hindu elec ticism is such that in course of time Buddha was recognised as the incarnation of Vishnu. In social institutions and rituals, Hinduism is so close to Jainism that the latter appears to be almost a sect of the former. For the eclectic Hindu, religion is a matter of personal realisation, and that every religion to him is only a path to truth. He respects the Divine in every manifestation, and he is not dogmatic about his own doctrines. Hinduism incorporates all forms of beliefs and worship without necessitating the choice or rejection of anything particular. Hindu traditions stand for the belief that the highest divine powers complement each other for the well-being of the world and of mankind.

Indian traditions in their broad liberalism almost touch idealism divorced from realities. Take our Indian history. Other countries had placed genealogies in chronological order; we place them in cosmic settings. Others narrate events after they occur. We mention them in advance as if we are predicting the future—we are good in astrology. Others take note of relative values; we concentrate on absolute values. Others indulge in narrative, descriptive and expository type of history; ours is argumentative, critical, and dialectic dialogue, Indian literary traditions are replete with incongruities. Macaulay was furious on knowing that our kings ruled for 30,000 years, or that our geography was made up of "oceans of treacle and seas of butter". The point to remember is that no people could excel Indians in imaginative faculty, and that is a strong point in our traditions. Our ancients dwell more in the realm of the ideal than that of the real.

All aspects of our creative genius, whether art, architecture, sculpture, painting, poetry or drama are more idealistic than realistic. Hindu art revels in variety and complexity and delights itself in rich decoration. Even the great secular epic, **Ramayana**, presents a possible picture from the second to the sixth part, but the last part in which mother earth consumes Sita is typical of Indian mind, which is restless until it mixes something impossible with the possible. The anatomy of the human figure in Indian sculpture is yet another example. In Greek art human figures gain identity with real human beings; in Indian art they stand for the divine and hence lose proportions. This spirit pervades every walk of life, and is indicative of an aspect of Indian tradition which mixes real with imaginative. Take one more example. Alberuni who visited India in the beginning of eleventh century was all amazed at the scienific explanation of the lunar eclipse by Aryabhatta, who had rightly stated that a particular alignment of the sun, moon and earth causes the eclipse, but Alberuni was shocked to find the same Aryabhatta saying that a heavenly dragon devoured the moon and hence the eclipse. Alberuni could not comprehend why a scientific fact be thus killed by a myth. But that is Indian tradition which loves to mix up possible and impossible.

The same tradition of idealizing abstract concepts persists even in such a mundane field as politics. Political authority in India was never centred in the 'State', but in a very different entity **'dharma'** to which every one was subordinate but which never resided in any specific, identifiable individual. The kings were only the upholders of the **'dharma'** and never its source. Not only in politics but also in all basic issues of life, such as what should man live for, our ancients have said that he should live for loving, understanding, sharing, caring and for creative tasks, the whole of which is epitomized in one word "**dharma**". There is no exact equivalent for that in English. Perhaps, righteousness comes close to it. According to Indian tradition everything in the universe has its, 'dharma' on which its existence depends. The essential nature of a thing becomes its 'dharma' or 'attribute' or 'duty'. Man's survival would depend on the performance of his **'dharma'**.

Unity, diversity, continuity and flexibility are other aspects of Indian traditions which form the core of Indian culture. There is a running unity in diversity which is a hallmark of Indian pride. A casual look at India from its geographical, linguistic, demographic, social, religious or even political point of view would exhibit a range of diversity, which would compel an observer to declare that it is hardly a nation. From the Kashmir valley to Cape Camorin, from the Assam hills to Rajasthan desert you have the landscape of a continent which is hardly condusive to a compact nation. Linguistically, you have a museum of languages, over 2000 dialects, of which at least fifteen are listed in the eighth Schedule of the Constitution as of national importance. We have declared Hindi as the national language, but when two Indians meet outstde their State, they understand each other only in English. The demographic distribution, colour, size and physical make up of Indians are so varied that a Kashmiri and a Madrasi or a Punjabi and Malayali have nothing common in physical appearance to declare they are from the same country. The society is cut up into so many castes, creed, class and sects that it is a delight to a sociologist to find in one country all conceivable forms of human groupings. Religiously, India is a spiritual gallery where pictures of every shade of faith and belief are hung, whether Hinduism, Buddhism, Jainism, Sikhism, Judaism, Zorastrianism, Christianity or Islam. Each religion is in itself a variety shop for numerous brands of its own faith. Politically, no democracy in the world has generated such mushroom growth of political parties as India, where splitting comes close to biological division of a cell.

Despite all this bewildering complexity, India is one, Indians are a nation, Indianness is in the bone and marrow of every one. Culturally they belong to one composite whole. Beneath all superficial differences lurks an essential unity. Take for example, such a divisive force as religion. Religious congregations of any of our faiths have one thing in common. They are not mere social assemblies to declare their separate identity, but are meetings to worship God they hold dear, and acknowledge His superiority. Whether it is a temple or a mosque or a church or a gurudwara, it is the same sentiment of devotion to the Supreme Being that forms the main business within its precincts, because God is not with us a distant God, but a spiritual force within every soul. God belongs to our home as well as to our temple. Every Hindu house has a puja room. God is the Chief Guest there, whom he worships. Rabindranath Tagore has so beautifully put it, "In seasons of flowers and fruits, in the coming of the rain, in the fullness of the autumn, we see the hem of His mantle and hear His footsteps...We love Him when love is true. In the woman who is good we feel Him, in the man who is true, we know Him; in our children He is born again and again, the Eternal Child. Therefore, religious songs are our love songs and our domestic occurrences such as the birth of a son, or the coming of a daughter from her husband's house to her parents and her departure again, are woven into our literature as a drama whose counterpart is the Divine". Whether Hindu, Muslim, Christian, Sikh, Parsi or Jain, the feeling is the same towards the Ultimate Reality, the Cosmic Consciousness. This is unity in diversity.

Scratch the brown, black or tan skin of any Indian, you would find the same temper, attitude, behaviour, values and outlook. His strong points also are alike, and his weak points also are alike. When he likes you, he will praise you to the sky, and when he dislikes you, he condemns you to a hell. Visit any village in India, you will find the folks affable, hospitable, sentimental, innocent, industrious and poor. Visit any city, you will find competitiveness, craziness, craftiness, show and bad taste for superficial things, the cinema posters being one example as if we have nothing else to show. Our social customs, habits, manners, tastes, ways of living, thinking, doing, sharing, acting, all have remarkable similitudes over the length and breadth of India. Masses below poverty line yet with a smile over their face, a small section of affluent people with vulgar display of wealth and increasing craze for acquisitiveness, and a sizeable segment of middle class lost in its avocation of business, service, art, craft, farming or industry, present the same kaleidoscopic panorama of Indian society all over India. Every linguistic group passionately loves its own language, and leaves no stone unturned for its development. Every religious group clings to its faith as leeches do to a body. Every political party sings its own song of its ability to lead us to the Garden of Eden, if only it was voted to power. Our communist brothers are as fond of private property as our capitalist friends. Our socialist democrats are as keen to centralise all power in their own hands as our conservatives. If it comes to gain something our moralists are as aggressive as our fighting cocks. There is running unity in all we do, think, wish or plan. There is perfect harmony in all our behaviour, good, bad or indifferent.

Indian identity is not difficult to find. Extremely intelligent, resourceful, creative, visionary, basically good and innocent he carries the load of rich culture of 5000 years old, which at times acts as an impediment. He has not shaken off his age-old inertia, the soul-killing rigidities of the caste system, the slavish mentality of looking to the masters to deliver the goods, to grab the bigger cake when opportunity occurs, to dwell in the glory of the past, even if that past were to be an illusion, to compromise his principles if that were to be to his advantage, and to place self before all. This is the general trend but not uniform. Otherwise we could not have survived through the centuries. There is another side to the same coin. In the company of good, he appears to be the tallest. When calamity comes, (whether from Chinese or Pakistani), he stands solid like a rock. On the basic values of humanism, liberalisms eclecticism, socialism or democracy he is as innovative, and enlightened as any advanced nation of the world. In all other countries of Asia (with the exception of Japan) governments are changed by dagger, but the Indians change it by ballot box. The freedom of press touches licence, where he could ridicule the highest authority and yet get away with it. The family still retains the filial bond where the old parents need not knock at the House for the Old. Its scientists, technologists, thinkers.

poets and philosophers could cross sword with any the best in the world. Its land emits gold and its rivers could feed three times the population of the world, if properly used and yet the people are poor. In the last forty years Indian has washed off a good lot of bad stuff, and has created a new India, where creative cross fertilisation of ideas is still strong and yet we are not out of wood.

Let this be on record that the land of Buddha, Asoka and Akbar has produced in recent times a Gandhi and a Nehru, the brightest luminaries of the present age, who reversed the direction of history, liberated millions from bondage, and laid the foundation of the greatest democracy on earth. In the post-indepence era a super craftsman in ideas turned a newly emerged nation into a leader of resurgent Asia, despite the fact that India commanded neither the economic strength of America nor the military power of Russia. This is because the inner organs of Indian society are basically sound. Culturally, India has been reinvigorated by mental contact with the outer world from the time of Alexander to the British raj, and had absorbed ideas from every quarter which got fertilised under its rich tradition of assimilation. Spiritually, the area of its supreme pride, India has preached and practised the moral code of love, patience, non-violence, truth and bhakti from Buddha to Gandhiji. Historically, India has an unbroken record of over 5000 years, which witnessed the drama of man's struggle to carry truth and justice into the administration of the human society, in the rise and fall of the creeds, in the world of ideas and deeds of many great actors, who have left deep imprints on the sands of time. India does present us a picture of the march of man across the centuries and the work of the multitudes of human beings trying to pass on to us a better life than their own.

If someone asks our identity we can boldly say that we belong to that group which in arts and letters, philosophy and religion, adventure and administration, and in culture and way of life, have made significant contribution to the heritage of mankind. Open the pages of the **Upanishads** or **Geetha** or **Geethanjali**, you will be struck by the profundity of Indian thought. Go to Taj Mahal or Puri temple or Ajanta caves you would be amazed at the richness of our art. Think of Buddha or Shankara, or Madhava or Kabir or Tulsidas or Guru Nanak or Basaveshwara or Gandhi, you would gain a glimpse of cosmic consciousness. Your identity in social sphere is linked to that fabric of diverse strands which is woven into an unique pattern by the inner urge to find unity in diversity—a concept of deep significance which sums up the substance of

deep significance which sums up the substance of

Indian life. Your identity in political arena takes you to the ground of krukshetra where good and evil fight out their everlasting battle. Your campaign began in Mahabharata and you are in it right today. Your identity is that you have limitless potentiality, to do both good and bad. You are the finest among the best, and quite the opposite in the other camp. The richest live in our land and also the poorest. The most enlightened exist in our midst and also the most ignorant. Sometimes we soar high as supermen, and other times we fall like flies. Indian is nothing if he is not an enigma. ☐

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Administration in Indian Agricultural Universities

S. T. Kachwe*

Administration itself is a very complicated process. Administration in the educational institutions and universities has become more complicated. In agricultural universities the process is most complicated because these universities have been established in recent years and the concept also differs from traditional universities. The traditional universities have gained considerable experience and therefore, were able to remove the lapses, correct the mistakes if any, while formulating their policies and while making provisions in the Act, Statutes and Regulations.

Moreover, the traditional universities act mainly as the examining bodies with comparatively less component of research and extension personnel or labourers. The administrator in agricultural universities has to manage with teachers, research workers, extension education workers, other staff, students and labourers. All these components have diversified interests. A look at these components will show that the administration in agricultural universities has to deal with highly qualified academicians and also the labourers who are practically illiterate. Such types of diversified activities and various types of groups are rarely found in traditional universities and government offices. The administration in agricultural universities has to act as a liaison between the university and ICAR, UGC, State Government, non official members of various bodies, other officials and outside public in general. Therefore, the administration in agricultural universities is to be considered different than that of traditional universities or government offices.

Though the basic principles of administration will remain the same, in practice the actions will differ.

This paper is confined to the provisions of Model Act circulated by the ICAR, recommendations made in different conventions of the agricultural universities, and the present Act in force in Maharashtra State.

The ICAR had circulated Model Act with a view that all the states while formulating the Agricultural University Act may consider broadly the guidelines given in the Model Act of ICAR so that all the agricultural universities in the country may have uniform provisions on major points with flexibility for minor adjustments depending upon the local situations. Following aspects are considered in this article.

Board of Management

In Model Act, the list of members to be nominated on the Board of Management is given. In this the number of non official members is less. In the Seventh Convention of the Agricultural Universities it was decided that the Board of Management should be a compact one with members having an understanding of the problems of agricultural education. In the Maharashtra Agricultural Universities Act 1983 the Senate or University Court is abolished and the Board of Management consisting of as many as 20 members is provided. Fifty per cent of them are non officials. Other official members very rarely attend the meetings. Number of non official members is not much important. But it must be seen that whether they have thorough knowledge of agricultural developments in that area, the problems of the agriculturists and an understanding of the agriculture and allied businesses in that area. If such persons are nominated they may contribute to agricultural development. Otherwise, the discussions mainly rotate around administrative actions and personnel problems. To overcome this it is suggested that :

(i) The non official members to be nominated should be experts in their field. For example, nomination of progressive farmers should be from those who have won awards as Krishi Ratna, Krishi Bhushan or Shetinishta or Krishi Pandit.

(ii) The discussions in the meetings of Board of Management should be policy-oriented rather than person-oriented.

(iii) If the resolutions passed by the Board of Management are not in conformity with the provisions of the Act, Statutes and regulations, the Chairman of the Board of Management should be empowered to nullify such resolutions. Accordingly provision should be made

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in the Act or to avoid confrontation between the members and the Chairman of the Board of Management provision may be made to refer the matter to Pro-Chancellor or to the Chancellor (if there is no provision of Pro-Chancellor) for further advice.

Selection Committee for Vice-Chancellor

The ICAR Model Act has suggested the constitution of selection committee to recommend the names of the persons to be appointed as Vice-Chancellor. In the Maharashtra Agricultural Universities Act 1983 the provision is not as suggested in the Model Act. In the State Act of 1983 a committee consisting of the Director General, ICAR, one member nominated by Chancellor and one non official executive council member of the university concerned to be nominated by the executive council of the concerned university has to recommend the panel for appointment as Vice-Chancellor. The member nominated by the executive council is a person having close contacts with the local officials and non officials. The local persons have easy access to such a member. The personal likings and dislikings of the member may appear in recommendations rather than merit. It is therefore, suggested that :

(i) Standing Committee of Director General ICAR, Chairman, UGC, and the Chief Secretary of the concerned State Government may be constituted for this purpose.

(ii) A list of eminent persons who are highly respected as administrators, educationists and scientists may be prepared at the level of UGC/ICAR on the basis of certain prescribed norms. This list can be updated every three years. The list may be circulated to all the State Governments and Chancellors. On the occurrence of a vacancy, the Chancellor may appoint any person as Vice-Chancellor from the list on recommendation of the committee proposed above.

Appointments of Registrar and Comptroller

As per the provisions of the Maharashtra Agricultural Universities Act 1983, the Registrar and Comptroller are to be appointed by the State Government on deputation. Such appointments on deputation can be appreciated for a specific period at any crucial moment. However, this arrangement has become a permanent feature in view of the provisions of the Act.

It is generally observed that the persons coming on deputation are from different fields, mostly from the Revenue Department. The administration done by these people in their department varies at many places with the administration in the universities. These persons have less knowledge of the educational system prevailing in the university. Also in their service career they are not much involved in management of students, labourers and academicians. They are normally on deputation for a period of 2 years or maximum upto 4 years. Because of such short period, they may think themselves as foreigners and may not have much association and feelings about the institution. A situation may arise when the Vice-Chancellor and Registrar may differ and both of them trying to act differently create disharmony. It is therefore, proposed that :

(i) The Registrar and Comptroller may be appointed by the University. In Maharashtra the Act provides State Council and the Council is empowered to select the persons in the cadre of professors and above. The selection of Registrar and Comptroller can also be made by the State Council.

(ii) The Registrar and Comptroller may be liable for transfer from one agricultural university to another within the State.

(iii) If the Registrar or Comptroller is found to be inefficient or it is observed that there are little chances of his improvement, he may be shifted to some other post suitable to his qualifications and/or experience or he may be removed from service by following usual procedure.

Powers of Registrar

In the Maharashtra Agricultural Universities Act the Registrar does not enjoy any administrative power. The principal executive is the Vice-Chancellor and the Registrar has to act on approval and orders of the Vice-Chancellor. For any and every matter the Registrar is accountable but he is without any administrative powers. This has weakened the position of the Registrar. Unless some powers are delegated to him in the Act, he may not be in a position to exercise the command. Therefore, it is proposed that the Registrar may be provided with some administrative powers so that he can act and control the staff effectively.

(Continued on page 26)

A Dangerous Illusion

"As the size of the modern sector is so large in absolute terms, the growing prosperity of that sector may give it the sensation of extra ordinary growth and expansion for the nation as a whole which would be a dangerous sort of illusion", observed Shri K.R.Narayanan, Minister of State for Science & Technology, Atomic Energy, Space, Electronics & Ocean Development, Government of India. Shri Narayanan was delivering the Convocation Address at the Eighth Convocation of the Anna University, Madras. He cautioned, "If the modern sector is not to become a vulnerable bastion beleaguered by the majority of the ignorant and the deprived in the country it is necessary for it to involve itself in the advancement of the people and integrate its destiny with that of the educationally and economically deprived". Excerpts

Convocation

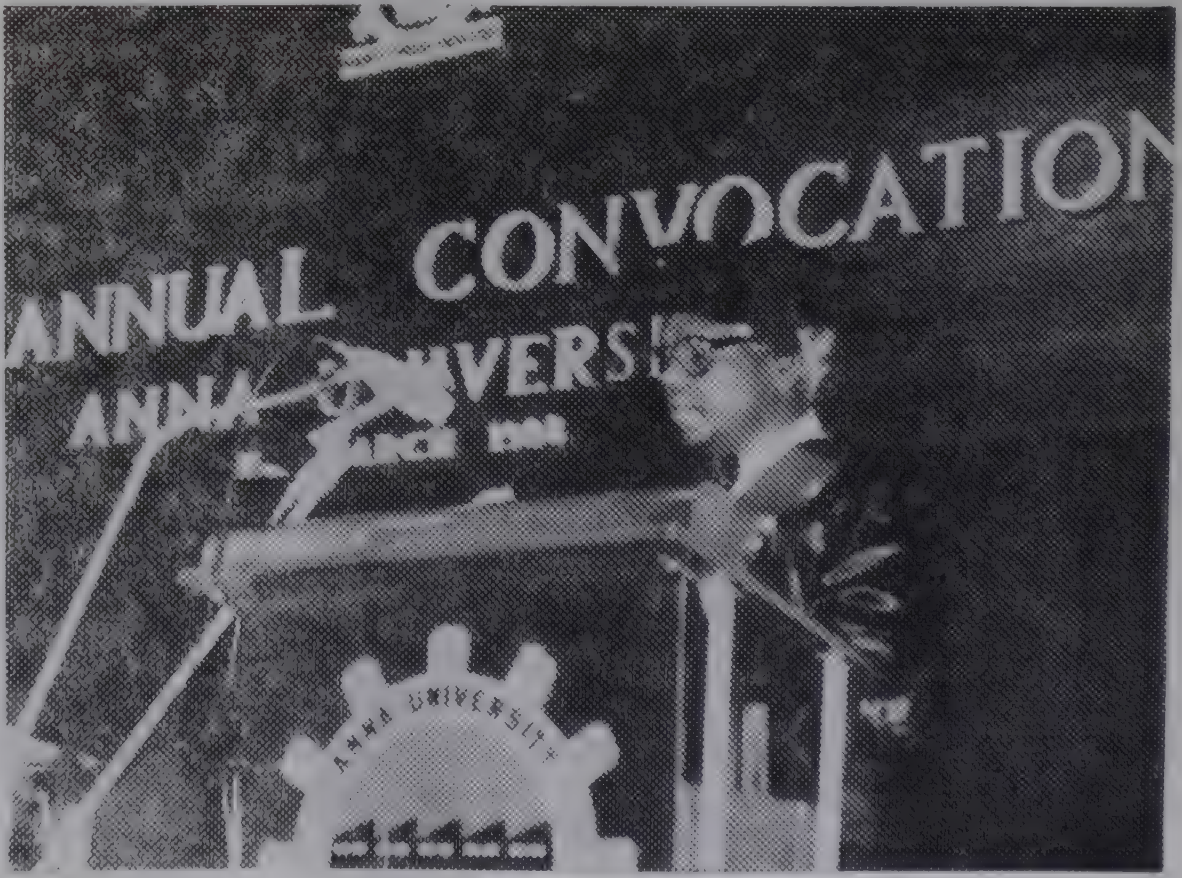
Science, Jawaharlal Nehru once said, has destroyed many a god, but has itself assumed the pose of a god. It is gradually unravelling the mystery of things, the nature of the world in which we live, the nature of the atom and the gene on the one hand and on the other, the interacting forces or as the poet and the philosopher would put it "the laws that leap the sky", regulating the universe. Science is at once understanding nature and changing it. Shakespeare talked of "the art" "which does mend nature—change it rather", adding, "but the art itself is nature". One can say the same of science. It is mending and changing nature, creating a second nature of new materials, products and processes in fundamental and spectacular ways. But the science itself is nature, for in the final analysis, nothing is made out of nothing; things are only mended, changed, transformed in so many myriad ways and in whatever fantastic forms. This is particularly so in the new world of science where the distinction between physics, chemistry and biology— indeed even the distinction between mind and matter—has been almost abolished. My Professor of Logic and Scientific Method, Prof. Karl Popper, used to define mind and matter in the following way: "Mind—No matter; Matter—Never mind".

In India the scientific pursuit originated in philosophical questionings and metaphysical speculations. This is the background for the assertion in the Scientific Policy Resolution of 1958 that "It is an inherent obligation of a great country like India with its traditions of scholarship and original thinking and its great cultural heritage to participate fully in the march of science, which is probably mankind's greatest enterprise today." The Resolution also declared the aim of the Government's scientific policy as "to secure for the people of the country all the benefits that can accrue from the acquisition and application of the scientific method." At the same time it had emphasized, with wisdom and foresight, that "technology can only grow out of the study of science and its applications".

It is necessary to have this twin approach both for fundamental and practical reasons. The gap between pure science and its applications in technology has been narrowing very rapidly, and also the highest technologies, the so-called frontier technologies are today having direct applications in tackling the common problems of the common people. One may recall that Michael Faraday on his discovery of the phenomenon of electromagnetic induction was demonstrating the induction of electric current before a group of distinguished British citizens when a Member of Parliament asked him : "What was the use of this phenomenon ?" Faraday replied : "Some day you will be able to tax the applications of electromagnetic induction." Since those days the gap between a scientific discovery and its utilisation has reduced drastically not only in raising revenue for the Government but in providing enormous profits for private enterprise. Besides, the interplay between science and technology has become more intimate, science giving rise to technology and technology generating science.

In India we are pursuing today with intensified and coordinated efforts the pursuit of both basic sciences and applied sciences and technologies. The vast infrastructure and manpower that we have built up over the last forty years enable us to make important breakthrough in theoretical sciences and in applications, not only in the modern sector of industry but in agriculture, in rural development and in education. heath and other social services. I have a sensation that Indian science and technology has today reached the stage of criticality when with larger R & D funding, more autonomy and freedom, greater incentives to young scientists, and more disciplined coordinated efforts, it can produce results that are significant in scientific terms and palpable and visible to the people in a practical sense. It is in this perspective that we have embarked upon basic projects like research and development in superconductivity, parallel processing and supercomputers, medium range weather forecasting, and far reaching programmes in biotechnology, while continuing our very successful adventure in nuclear, space, and ocean sciences and technologies. It is also in this perspective that we have undertaken a series of Technology Missions involving some of the high technologies impinging upon the basic needs of the people like drinking water, literacy, communications, immunisation and edible oils, and capable of transforming the conditions and the quality of life of millions of our people in the rual areas.

Education, in my opinion, is the key to the success of these immense undertakings in science and technology and in national development. I am referring not only to higher education but to general and elementary education. We have today in India, even with our low rate of literacy, about 250 to 300 million people who are literate which is the size of the populations of the super-powers, and perhaps 80 to 100 million who may be said to belong to the so-called modern sector of the economy, which is the population size of the bigger developed countries of the world. Such magnitudes of educated people can no doubt make an impact not only on our own vast country but on the world. But how much greater would have been this impact if this vanguard in our society had a literate nation behind it! Moreover, would it be possible for the educated and the elite sector in India, however large it may be, to continue to flourish indefinitely if the majority of nearly 450 million people are deprived of the blessings of literacy. It is possible to argue, indeed it is correct to do so, that literacy, and for that matter, even education is not culture or wisdom or knowledge, but it must be recognized that without it there cannot be any progress, certainly any scientific-technological progress for any country. As the size of the modern sector is so large in absolute terms, the growing prosperity of that sector may give it the sensation of extraordinary growth and expansion for the nation as a whole which would be a dangerous sort of illusion. If the modern sector is not to become a vulnerable bastion beleaguered by the majority of the ignorant and the deprived in the country it is necessary for it to involve itself in the advancement of the people and integrate its destiny with that of the educationally and economically deprived. One cannot talk meaningfully of advances in science and technology, of bringing its fruits to the people, of creating the awareness of science and spreading the temper of science among the people unless we can educate the people at least to the level of literacy. This is the rationale of the emphasis on elementary education and adult education in the New Policy on Education formulated by the Government of India. In this context it is important for us to recall that the Education Code of Japan introduced as early as 1872 had adopted the policy that, "There shall in future be no community with an illiterate family, nor a family with an illiterate person", and that in the post-war period Japan had taken a decision that educational planning would form the main aspect of economic planning. There could be no better model for us to follow in this field.



Shri K.R. Narayanan delivering the convocation address

I may add here that what is important is not just education but the kind of education that we are going to impart to our people. It has been recognized that our educational system has not been planned purposively from the point of view of social and economic objectives. The system of education has acted as a cause of alienation between the educated and the masses resulting in the current phenomenon of internal and external brain-drain. In spite of Mahatma Gandhi we have neglected the need for linking studies in schools and colleges with social reality, physical labour, and craft and industrial training as an integral part of general education. What we have been doing is to educate a person in a manner that would alienate him from his social and economic environment and then at the end try unsuccessfully to reorient his outlook or to provide inducements to him to work in rural areas or in areas of social priority.

In regard to science education, before the students come to centres of excellence like the Anna University it is essential that they should be introduced to computer and other technological devices very gradually, but on a wide scale from the school stage onwards. CLASS and the audio-visual programmes being implemented under the New Policy on Education are intended to achieve this objective. In an undeveloped rural society like that of ours infinite patience and subtle capbilities are required on the part of the teacher for the dissemination of basic scientific knowledge and famliarity with technological devices among rural boys and girls. Even in North America some surveys conducted show that in elementary schools the majority of microcomputers stand idle. and in secondary schools only 15 per cent of teachers use computers with any regularity in spite of the computer revolution that is taking place in education. I have no doubt that in future the computer will play an important role in education in India and it is necessary that we begin this process right now introducing students to this new aid to learning and training teachers in the use of it. As regards the popularisation of science among the people apart from the work being done at the governmental and voluntary organisations' levels we could usefully think of introducing a system of scientific extension work as part of the implementation of rural development which all have one or other aspect of science and technology involed in them. Colleges, universities and laboratories can play a useful role in such extension work in their own geographical surroundings. Such work is essential for generating in the rural population a minimum of capacity to benefit from these programmes. Without such widespread popularisation, science and technology might become yet another factor in the gap between the well-to-do and the educated, and the poor and the illiterate in our society.

As I said earlier India has made great strides in the advancement of science and technology, thanks to the vision and foresight of our political leadership, the high calibre and organisising capability of our top scientists, and the availability of a large pool of promising young scientists in the country. We have achieved world standards in the quality of research in our best universities, institutes and laboratories. But we have yet to raise the general standard of our research and to realize the fullness of our potentialities, especially in integrarting closely the activities of the university, the laboratory, the industry and the Government. In particular, the university must be made to emerge as the central focus of scientific research by the proper education and training of youth, laying more emphasis on fundamentals without neglecting current and future applications, evolving a problem-solving approach keeping in mind the interdisciplinary nature of science and the merging of the boundaries of scientific-technological pursuits including the boundaries of social sciences, and utilizing facilities of new educational technologies such as audio-visual aids, computers, etc.

I may emphasize here that, in the ultimate analysis, it is not enough that we make marvellous scientific discoveries and inventions and understand about their applications for the benefit of mankind. Einstein once said : "Concern for man himself and his fate must always from the chief interest of all technical endeavours, concern for the great unsolved problems of the organization of labour and the distribution of goods—in order that the creations of our minds shall be a blessing and not a curse to mankind." With this concern for man in mind, Einstein once wished, "May the new theorems of mathematics never find applications." As you go home with the bright prizes of your degrees in hand, you must reflect on the question of applications but perhaps on the priorities of research, including the expenditure of vast amounts on projects which logically and inevitably, will end up as a curse for mankind. You must also reflect upon whether the scientist as a responsible citizen of the world not insist upon working on projects and programmes which cry out for funds and priority attention and which will be a blessing for mankind. □

Implementation & Monitoring of National Policy on Education

The Association of Indian Universities (AIU) at its Annual Meeting held at Osmania University, Hyderabad organised a two-day National Conference on 'Role of Universities in Implementation of New Education Policy' on 18-19 December, 1987. The conference deliberated on several issues like Education in Human Values, Human Resource Development, Teacher Training, Restructuring of Courses, Research & Extension, Autonomous Colleges and Departments, Evaluation and Accreditation of Institutions, State Councils for Higher Education, Consolidation and Expansion of Institutions, Distance Teaching/Learning, Rural Universities, Youth Services, Sports & Physical Fitness Programme, and Women Education.

Department of Education, Ministry of Human Resource Development, has now approached the AIU for organising four 3-day seminars on Implementation of New Policy on Education (NEP) with emphasis on monitoring and continuous evaluation of the progress of implementation. The first Seminar was held at IIT, New Delhi on April 14-16, 1988.

Welcoming the participants to the Seminar, Dr. N. M. Swani, Director, IIT and Vice-President AIU, gave an overview of all the four seminars including those proposed to be organised at Imphal, Pune, and Bangalore. He reiterated the fact that one of the important specific objectives of the seminar, in addition to taking stock of status of implementation, is to devise ways and means, methods and procedures to monitor the process of implementation. He suggested that the participants must bring to the seminar individual experience of their universities in implementing whatever they have done, including the constraints they faced and the steps they undertook to overcome them. Briefing the participants with the schedule of work, Prof. S. K. Agrawala, Secretary, AIU drew their attention to the important task of identifying parameters and machinery for monitoring implementation of the areas of NEP under consideration in the seminar. He said that the Hyderabad seminar could make only general recommendations and therefore the report of the Hyderabad seminar may serve only as a guideline. Dr. Satya Bhushan, Director, National Institute of Educational Planning and Administration (NIEPA) inaugurating the seminar brought out clearly the need to evolve a code of conduct for all those involved in the implementation of the NEP. He suggested certain imperatives like effective utilisation and management of resources to reduce wastages. He made particular reference to certain case studies that were done comparing top down and bottom up strategies of policies that are usually 'long on description' but short on prescription', revealing that

(1) Change or process of change is linked up with ethos of delivery point;

(2) Changes cannot be always brought about by bureaucrats but by involving other actors of change; and

(3) Internal reforms are very much necessary alongwith external forces to make the system more responsive. He reiterated that every step for implementation must build in a process of democratic culture as well participative dimension.

Critically viewing simple collection of statistics, he said, a target oriented approach for both monitoring and evaluating progress of implementation is very much necessary.

Presiding over the first session on 'Role of Higher & Technical Education in Human Resource Development' Prof. Moonis Raza,

Prof. Moonis Raza, VC, Delhi University, addressing the first session of the Seminar

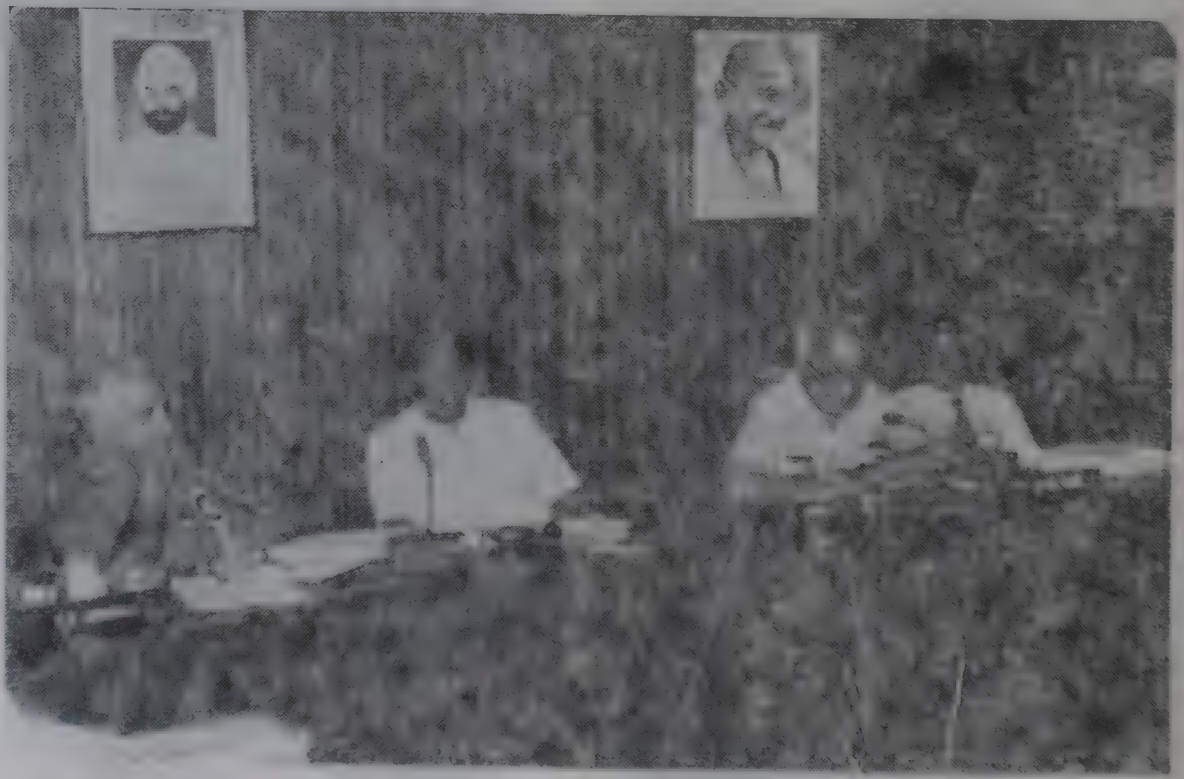
Vice-Chancellor, University of Delhi, drew the attention to working hours, work leisure concept, performance reflected by level of technology and quality of education, and the kind of import substitution in intellectual area of development of human resource. He said higher education performs the mother role to all sectors of education and, quoting figures like 'for every one student in agriculture there are 16 liberal arts students' and 3 to 5 technology and medicine students, the imbalance brought out between manpower requirements and the outputs of the education system. Mr. Anand Sarup, Chairman, NBT and former Education Secretary and one of the architects of the NEP, in his keynote address, traced the historical background of the NEP and suggested networking as one of the basic necessities of implementation of the NEP, in addition to the removal of all kinds of constraints enumerated in the Challenge of Education document. He forcefully recommended that the agency for implementation must also be the agency for monitoring the progress of implementation. He appealed to the participants to constitute themselves into small committees to deliberate on issues like what has been implemented so far, which of them have been successful, which of them have been failures, which of them could be implemented without any financial assistance from other sources, which of them could be implemented only when the environment changes and lastly, how to monitor and evaluate the progress of implementation.

A lively discussion followed in which attention was drawn to the proposal to establish many institutions for implementation, lack of resources, phasing of programmes, centre-state relationship in implementation etc.

Distance Teaching/Learning was the subject of discussion in Session II and Dr. G. Ram Reddy, Vice-Chancellor, Indira Gandhi National Open University & former President AIU, in his keynote presentation, outlined the three aspects of distance education which the National Education Policy incorporated as a concept namely, Correspondence Courses that are run by Directorates of Correspondence education of various universities, Indira Gandhi National Open University, and coordination and maintenance of standards in distance education. He felt that some correspondence courses still suffered from being stamped second class system, lack of autonomy to plan and implement courses and using only print material and suggested that in order to improve standards of these correspondence courses, they must be helped with training for preparation of resource material (lesson audio-visual etc), provision of well-equipped study centres and overall improvement of study materials. He was of the view that the State Open Universities, when they are established must be persuaded not to duplicate courses and materials already developed by the National Open University and to the extent possible make use of those materials, if necessary, translated into regional languages. He drew attention to the fact that UGC is responsible for maintenance of standards of correspondence courses in universities and the National Open University for standards in State Open Universities. In this context it becomes all the more necessary that norms and standards are laid for distance education in general.

In the discussion that followed, several points were raised including the need to improve existing correspondence courses, facilities at the study centres, preparation of instructional material in Hindi and regional languages, improving delivery system, starting not only degree programmes but continuing education programmes as well.

Dr. S.K. Khanna, Secretary, UGC delivering a keynote address on 'Consolidation & Expansion of Institutions' brought to the notice of participants various programmes and activities of the UGC in the matter of consolidation of Institutions, deciding on developmental grants,



Prof. G. Ram Reddy, VC, IGNOU, speaking at the second session programmes of consolidation for universities and affiliated colleges, deviating from the procedure of sending visiting teams to the universities, adopting direct discussions with Vice-Chancellors and their teams Also, he made it clear that guidelines giving norms for establishing new colleges and departments have been circulated to all colleges and also assistance provided in new thrust areas identified by NEP. Prof Sampath, in his keynote address on the topic, particularly in technical education, called for academic freedom, flexibility in conformence to prescribed rules and regulations, speed in implementing innovative measures in education and training programmes, encouraging merit in admission and selection, special care for under privileged, meaningful research programmes, fitting into the framework of evolving science and technology plan at the national level. In technical education, he said, primary emphasis should be on linkages of academic institutions with R & D units, industrial consultancy, technology transfer, net-working and the like. He called for immediate attention to identifying and rewarding good teachers and provide incentives to those who take and do teaching seriously, even though leisure time activity of research should also be taken as a criterion. The problems of obsolescence, provisions of new equipment and infrastructure, maintaining and utilizing existing facilities are areas of important concern in the NEP and attention should be paid to implement various programmes in technical education.

Discussion followed in which participants came to a consensus that no new college or university should be established unless it satisfies the norms laid down and approved both by State Government and the UGC.

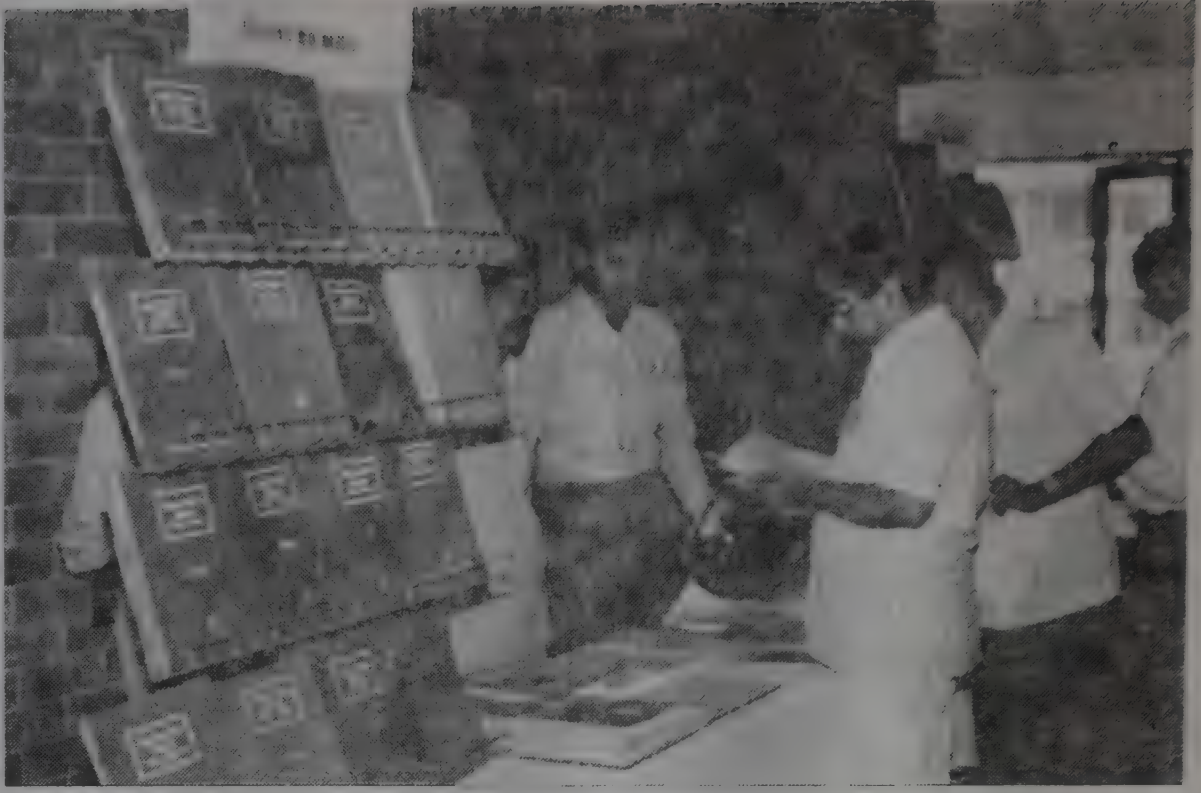
A view of the participants

Introducing the theme of Academic Staff Colleges, Prof. C.J. Daswani traced the background of Academic Staff Colleges concept in the attempt of UGC to translate the policy perspective of providing training to new entrant teachers. The document accepted and circulated by UGC discussed in detail the need for such training programmes, the content and scope of short term orientation courses and the extent of coverage of teacher population under these programmes. He brought it to the attention of the participants the 'Poona Model' of 8-weeks of training in summer, winter and the subsequent summer vacations, the modular concept of training, lead lecture, peer group discussion and assignments in various areas of training, incentives provided to teachers and the motivation shown by them. After detailed discussion of the topic, the consensus was that something close to Poona medel must be tried in various Academic Staff Colleges in addition to their own ways of organising similar training programmes. There was also unanimity that since the programme is new, every effort must be made to work out uniform norms for standards in these courses, in provision of infrastructure and in monitoring the progress of work in these colleges.

Dr. Sneh Bhargava, Director, AIIMS, in her presidential remarks before the session on "Youth Services, Sports & Physical Fitness Programmes' dealt with the importance of physical fitness and suggested that universities should pay a lot more attention to it than they did in the past, sice the Education Policy lays not only emphasis on physical fitness and sports but has made a provision of substantial financial resources. Mr A.K. Pandya, Director General, Sports Authority of India (SAI), talked of various programmes of sports activities including scouting of talent below 12, offer of incentives to 200 and odd potential sports talented boys and girls with free education and boarding and lodging, the provision of coaches by SAI for various tournaments and above all, placing the infrastructure of stadia and other facilities in cities and towns for use by educational institutions and the like. Mr G.S. Sivia, Deputy Secretary (Sports) AIU, in his address dealt with sports in society and the place of sports in Higher Education. He dealt with various programmes of AIU in the matter of inter-university tournaments, organising inter-university athletic and sports meet, and promoting consciousness of sports in colleges and universities. Discussion followed in which it was made more clear that several programmes have been inadequately implemented and the seminar called for better implementation in the remaining period of the 7th Plan.

Participants at the seminar were exposed to an exhibition of AIU publications and also a computer demonstration of desk top publishing system (Abacus) and software packages of pre and post examination processing (Binary Semantics).

In the concluding plenary session, reports from various committees one in ecah of these areas, to go indepth on issues like what could be implemented without financial assistance, what has been implemented/not been implemented, what could be implemented with financial inputs and environmental changes and what mechanisms can be adopted to monitor, were presented and adopted. □



AIU Book Exhibition

INDIAN INSTITUTE OF SCIENCE

BANGALORE-560 012

The Institute is looking for brilliant and highly motivated young scientists (Indian Nationals) for **FACULTY POSITION** with a Ph.D. Degree and atleast 5 years of Post-doctoral experience in frontier areas in any one of the following or related areas in the Department of Organic Chemistry and to carry out research and teaching in (i) **Organic Synthesis;** (ii) **Reaction Mechanisms;** (iii) **Bio-organic Chemistry;** (iv) **Structural Organic Chemistry;** (v) **Organic Spectroscopy**. The applicants should have a record of original publications to their credit and be capable of carrying out independent research work. Desirably, the candidate should have the flexibility and capability to participate in collaborative research with other faculty of the department. Experience is relaxable in exceptional cases.

Prescribed application forms can be obtained on request from the Registrar accompanied by a crossed I.P.O. for Rs. 5/-(free of cost to SC/ST on production of Caste Certificate from a competent authority) drawn in favour of the Registrar, Indian Institute of Science alongwith a self-addressed stamped (Rs. 5-40) envelope of the size 28×18 cms. Completed application form has to reach him within six weeks from the date of publication.

R(IA) 308-9/88 **REGISTRAR**

National Commission on Libraries

A committee set up under the chairmanship of Mr. D.P. Chattopadhyaya to formulate an action plan on the national policy on libraries and information systems has recommended the setting up of a national commission on libraries for generating a library movement in the country, with emphasis on literacy and presentation of the cultural heritage as envisaged in the new education policy.

In its report submitted recently to Shri P.V. Narasimha Rao, Union Minister for Human Resource Development, it has said that the main thrust should be on rural public library development and a community centre library should serve as a community's information centre resources from agencies engaged in fields such as public health, adult education, local self-government and cottage industries should be mobilised to build up this centre.

The committee said this kind of rural library/information centres be made available under the minimum needs programme by 2000 A.D. The Ministry of Rural Development and Department of Culture should undertake a plan for building up one community centre with library facilities in every panchayat under the eighth plan. Every public library should have a children's section. A minimum of 20 per cent of the public library collections should be meant for children.

The other major recommendations are : All public libraries and community centres should have audio-visual materials and equipment to meet the needs, especially for the benefit of neo-literates, community centre libraries should have an important role in adult education programme, a national authority of adult education, a national institute of adult education, should be set up, and voluntary agencies should be associated with the state public library development programme and the national commission for libraries, and the publications of Indira Gandhi National Open University should be available in all local public libraries.

All the States and Union territories should have a public library Act in some form or the other. The Central government, in collaboration with state governments, may establish at least one multilingual (all Indian language publications) library in each state

BIT Develops Rocket Fuels

The Union Government is understood to have sanctioned special projects in rocketry, space engineering and pharmaceutical science for the Birla Institute of Technology (BIT) at Mesra Ranchi. The Institute, it is believed, has successfully developed several rocket fuels for solid propellant rockets and has set up a research facility in hybrid and liquid propellant technology.

Several projects have been undertaken for the Ministry of Defence, the Atomic Energy Commission, the ICAR and the new R and D schemes. Flamo R propagation and stability unit has been installed to study the combustion behaviours, flamability limits and flame propagation velocity of gaseous fuels.

The Institute also proposes to start a course in plasma engineering science at the postgraduate level and a basic plasma laboratory has been set up. Proposals for starting postgraduate courses in environmental engineering as well as remote sensing have also been finalised and submitted to the concerned authorities for approval.

Examination Reforms

The Examination Reform Unit of the South Gujarat University concentrated on modifying/developing the question banks in the subjects of Mathematics, Gujarati, Home-Science, Accountancy, Biology, Political Science, Economics, Microbiology, English, Hindi, Sanskrit, etc. during the year 1987-1988. It also made an attempt to develop the question bank in the subject of Electronics—F.Y.B.Sc. level.

The Unit organized a three-day workshop on orienting teachers on various concepts of Examination Reforms at Vanraj Arts & Commerce College, Dharampur. The emphasis in this workshop was on orienting the teachers to basic concepts of examination and evaluation and also on sharpening the evaluation tools; question/s and question papers. The teachers were oriented to basic concepts like Examination and Educational Evaluation, Taxonomy of Educational Objectives, Writing of objectives of teaching a particular subject, Characteristics of a good measuring Instrument and Techniques of framing various types of items such as Multiple Choice and Matching type, etc. They were also given the practical training of framing various types of items and writing of objectives.

A one-day seminar on 'Curbing Malpractices at the Examination' at two centres located in interior areas was also organised. Students, Teachers, Invigilators and all those who perform duties at the time of examination participated in these seminars. Why students resort to malpractices was the main thrust for discussion. Irregularities in academic terms and teaching, inadequate coverage of prescribed syllabus, non-availability of prescribed textbooks, etc. motivated students to indulge in malpractices.

The students also emphasized urgent need to change the present examination system and suggested an Open Book examination system. They also emphasized compulsory supervision by teachers and preferred centralised assessment alongwith dummy numbers. With regard to punishment, they said publicity be given to the rules regarding punishment and all those who are connected with malpractices should be punished.

100th Study Centre

With the establishment of 100th Study Centre of Indira Gandhi National Open University (IGNOU), 95% of the States including Union Territories of the country have been covered.

The work of these Study Centres is coordinated by the eight Regional Centres at Delhi, Bhopal, Lucknow, Bhubaneshwar, Hyderabad, Bangalore, Ahmedabad and Kota to assist its 25000 students.

While Regional Centres are manned by full time IGNOU staff, the Study Centres are managed by part time coordinators with the help of part time staff. For counselling purposes, expert/experienced teachers are appointed as academic counsellors at Study Centres. The student admitted to any of the courses of the University is allotted to the Study Centre nearest to his residence. Therefore, a student attends counselling sessions as per course requirements as well as gives exams as per his convenience. Each Study Centre is equipped with two colour TVs/VCRs, tape recorders, course materials alongwith audio and video cassettes of the courses run by the National Open University. Even the assignments of the students are assessed at the Study Centres by the counsellors and monitored by Regional Directors. As the Study Centre is managed by part time staff, orientation programmes are organised frequently. Students are bound to benefit maximum from such steps taken by IGNOU, as there is also a regular communication between Headquarters at New Delhi, Regional Offices and Study Centres all over the country to sort out problems of students.

Hindi Courses from July

The next session of the certificate course and diploma course in Hindi conducted by the Central Hindi Directorate of Human Resource Development Ministry will commence from July.

These courses will be of one-year duration each and will be taught through the medium of Malayalam, Tamil and English. Relevant lessons for these courses and response sheets will be supplied to the students on a monthly basis, for which a nominal fee of Rs 30 has been fixed.

Supplementary books and related literature would also be periodically supplied to the students. In addition, the students will be provided the facility of personal contact programme at important centres. The last date of submission of applications for the courses is May 31.

Training Social Workers on Behaviour Modification

The Madurai Institute of Social Work, in collaboration with the Association of Schools of Social Work in India, organised a National Institute on Training of Social Workers on Behaviour Modification from 24th March to 30th March 1988 at Madurai under the aegis of University Grants Commission (UGC).

Dr. S. Krishnaswamy, Vice-Chancellor of Madurai Kamaraj University, in his presidential address, urged Social Workers to study the behavioural pattern of individuals and plan their programmes in keeping with this pattern.

Prof. N. Anandapadmanaban, Director of Collegiate Education, Madras, who inaugurated the training programme, pointed out that in India today not only the society but even individual families were facing many problems which led to tension. There was therefore an urgent need to develop behaviour modification to overcome this tension. He also said, the Social Workers must understand the changing attitudes of people and act accordingly. He urged social workers to form into groups to work with different sections of the people, like those living in slums workers, etc.

Dr. K.K. Jacob, Principal, Udaipur School of Social Work, Udaipur and President, Association of Schools of Social Work in India, stressed the need for development of human resources.

Dr. K.V. Kaliappan, Professor, Dept. of Psychology, University of Madras, traced the historical background of the method of Behaviour Modification from 1880 till 1930.

He also pointed out that inspite of the acknowledged importance of 'Behaviour Modification' techniques in the academic circles, no degree course including medical and nursing courses had included behaviour modification in the curriculum.

Papers were presented on different aspects of Behaviour Modification and the topics discussed included, amongst others, Behavioural Social Work, Effect of tension on our body, suicidal tendency, Transcendal Meditation, Time Management, etc.

A syllabus on Behaviour Modification for the Postgraduate course in social work was framed during the week long seminar which was attended by over 35 social work teachers from all over the country.

National Law School

The Bangalore-based National Law School of India, set-up last year and the first such institution to be given university status, is likely to start its first year of academic instruction from July. The school's director, Dr. N.R. Madhava Menon, said in Delhi recently that the proposed university would have a unique organisational structure with the Chief Justice of India, judges of the Supreme Court and High Courts as well as chairman and members of the bar council as participants in the governance of the institution.

Fake Degrees

The Monopolies and Restrictive Trade Practices Commission (MRTPC) is reported to have temporarily restrained the Delhi-based Society for Advanced Studies in Medical Sciences from issuing false and fake medical degrees and diplomas. It was alleged that the institute was making false claims because it was neither a recognised one nor entitled to impart education or confer post-graduate medical certificates.

APOU Offers New Courses

The Andhra Pradesh Open University (APOU) proposes to offer six postgraduate courses, four of them of degree level, from the next academic years. The courses include M.Sc. (Maths). M. Com. M.A. (Political Science). M.A. (Public Administration), P.G. diploma in nutrition and P.G. diploma in marketing management.

Course in Condensed Matter Physics

The Pondicherry University proposes to introduce an M.Sc. course in Physics (Condensed Matter) of two years' duration with an intake of 10 students from the academic year 1988-89 in its Department of Physics.

News from Agril. Varsities

Forage & Fodder Crops Research

The Indian Grassland and Fodder Research Institute (IGFRI) is reported to have made rapid strides in evolving technologies in areas of grass and fodder crops and has also helped in combating drought. Set up at Jhansi about 25 years ago, the institute has been playing a vital role in conducting research and co-ordinating training and extension programmes in different aspects of forage production and utilisation.

According to its Director, Dr. Punjab Singh, the Institute is at present conducting research in diverse fields like forage plant improvement and utilisation, grassland improvement, plant protection, conservation and post-harvest technology and seed technology. Dr. Singh said the institute has improved varieties of forage crops which suit farming systems, intensive forage crop rotation, fodder production systems, agro-forestry and grassland production systems. It has also developed several low cost labour saving implements. The fodder conservation techniques have been standardised to conserve surplus fodder during lean periods.

Dr. Singh said the institute has also developed a variety of high yielding, nutritive and disease resistant forage crops. Besides this, the institute has developed fodder production systems providing about 175-280 tonnes of green fodder per annum for dairy farming.

Considering the vast area under rainfed conditions, the institute has undertaken work on forage components and inserted the same cropping pattern in dryland areas. The level of green forage production ranged from 20 to 35 tonnes per hectare for cowpea, 24-26 tonnes for guar and 24 to 38 per tonnes for mothbean.

Malagasy Republic Delegation Visits HAU

A high level ministerial delegation from Madagascar headed by His Excellency Mr. Remi Clement Tiandraza, Member of Supreme

Revolutionary Council and Chairman of CSR Commission on Agriculture, Livestock and Forests, visited the Haryana Agricultural University recently and lauded the work being done by the scientists, especially in the field of socio-forestry and evolving of high yielding yield varieties. The delegation visited the College of Agriculture, where they were shown the new varieties developed by the HAU scientists. The visitors evinced keen interests in the nursery of the Department of Forestry where the HAU is establishing the country's first tree germ plasm bank.

At the College of Animal Sciences, cross breeding programmes and projects on the Management and rearing of animals were shown to the visiting team.

Dr. Gillon Visits HAU

Dr. Luc Gillon, Director of the research foundation of University Louvain, Brussels (Belgium) recently visited Haryana Agricultural University to study the impact of research activities in the actual fields and to measure the degree of transfer of technologies from lab to land programme. During his one-day visit, Dr. Gillon visited the colleges of Agriculture, Animal Sciences, Veterinary Sciences of the University and saw the work being done there. He also visited the seed technology and horticultural laboratories where the senior scientists explained to Dr. Gillon the impact that lab to land programme of the university has made in various fields.

In a meeting with the Vice-Chancellor and senior scientists of the University Dr. Gillon held discussions on the research, extension as well as administrative set up of the University.

News from UGC

INSAT-1B Programme of UGC

Between 2nd May to 14th May, 1988 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is of one hour duration every day from 12.45 p.m. to 1.45 p.m. (Repeated from 4 p.m. to 5 p.m.) and will be available on the TV Network throughout the country. For the viewers in Delhi and surrounding areas these programmes can be seen on the second channel.

2.5.88

"The Race : A Programme on the Cyclotron"
"Optice—I Light and Sight"
"Air to Live"

3.5.88

"Developmental Stages in Child Art"
"Preparing Life Skills"

4.5.88

"Introducing Immunology-I"
"University Round Up"
"Surgery : An Introduction"

5.5.88

"Concept of India-II"
"Beneath Scotland"

6.5.88

"Mathematical Induction"
"The Future Tense-Derelict Ecosystem"
"Star Wars"

7.5.88

"Art Appreciation-I"
"The Young Goethe"

8.5.88

No Telecast

9.5.88

"Introduction to Computers-I"
"Optics-II Light and Shadow"
"Marshalling Yard"

10.5.88

"Caste : Human Kind"
"Dynamics of Rural Development"
"Man and Land"

11.5.88

"Introducing Immunology-II"
"Metabolic Pathways"
"Kidney Stone Surgery"

12.5.88

"Ocean Crust"
"To Scatter Plenty Over a Smiling Land"
"Rivers"

13.5.88

"Rational Numbers and the Square Root of Two"
"Magellan-Exploring the Planet"

14.5.88

"Art Appreciation-II"
"From Weimar to Rome"
"Sailing in the Air"

SPORTS NEWS

Universities Junior Hockey Probables

With a view to field a strong team for the coming Junior Nationals, about 100 players from 34 universities have been identified on the basis of performance in the Inter-University Hockey Tournament organised at 4 zonal centres. These probables will be invited to attend the selection trials and the selected players will be retained for the coaching camp proposed prior to participation in the Junior National Hockey Championship 1988. Only those boys who are below 19 years of age are eligible to participate in this competition which is the nursery of budding hockey players in the country.

Indian Universities Junior Hockey Team secured the runners up position in the Junior National Hockey Championship at Lucknow last year.

A Fascinating Account

Bhargava, Moti Lal. Hundred Years of Allahabad University. Ashish Publishing House, New Delhi, 1987, Pp. xiii, 376. Rs. 250.00.

Dharma Vira*

Even though the Allahabad University has been in existence for one hundred years it is strange that so far no attempt has ever been made to write its history. The Allahabad University is one of the oldest universities of our country. During the hundred years of its existence the University has played a leading role in the growth and development of University education in India. It was not long ago that the Allahabad University was rated as the best university in India along possibly with the Madras University. It has produced distinguished students who have rendered valuable service to the country in all walks of life—political, academic, civil services and law, etc. It is to the credit of Dr. Bhargava that he has now produced a history of 100 years of the Allahabad University against all possible odds. It is a pity that the University authorities and many public sector organisations who could have made Dr. Bhargava's task easier denied to him their cooperation and help. Viewed against this lack of cooperation and help the work done by Dr. Bhargava is all the more commendable.

The statistical and documentary information about the growth of the University, which at one stage covered a major part of North India, and thereafter gradually shed most of its functions as an affiliating university, with the setting up of local universities in most areas and finally being reduced to the position of a local university confined to a small area surrounding Allahabad, is a fascinating account. Also enlightening are the accounts of the pre-Independence period during which India's foreign rulers vainly endeavoured to stifle the growth of nationalistic tendencies amongst the students of the University through official interference, mainly exercised through Vice-Chancellors who were either foreign bureaucrats or appointees of the provincial government. That they did not succeed was principally due to the efforts of Sir Sunder Lal, Pandit Iqbal Narain Gurtu, Pt. Madan Mohan Malaviya, etc. all old students of the Allahabad University.

However statistical and documentary information only cannot be considered to be the full historical record of the University. History has to have much more body. A University is a body of students and academicians which besides academic occupations pulsates with the social, nationalistic and other activities of the community which as an ex-student of the Allahabad University. I am aware the University had in plenty. It is those activities and not the academic pursuits alone which helped the University in producing alumni who served the country in all walks of life with great distinction. The book alas is deficient in this respect and hence does not provide the complete history of the university. Further, the causes of the decline of this great university, besides its financial difficulties have also not brought fully into the picture. The growing and rampant indiscipline amongst the students, the fall in the role of the teachers and their recurrent strikes, political interference by M.L.As, M.Ps and Ministers all have contributed to the decline of the University. How all these have grown and what is required to be done to restore the University to its former glory would have been important parts of the history of the University. But for these deficiencies Dr. Bhargava has done an excellent job of work and deserves to be congratulated on the completion of his "Labour of Love". ☐

TO OUR READERS

Knowledgeable and perceptive as they are, our contributors must not necessarily be allowed to have the last word. It is for you, the readers, to join issues with them. Our columns are as much open to you as to our contributors. Your communications should, however, be brief and to the point.

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* *Former member of the Indian Civil Service and Governor of Punjab and Haryana, West Bengal and Karnataka.*

UNIVERSITY OF HYDERABAD

CENTRAL UNIVERSITY P.O. HYDERABAD-500 134

ADMISSION ANNOUNCEMENT 1988 89

The University will hold an **Entrance Examination** from 24th June to 29th June, 1988 for admission to various programmes of study.

Schools and Programmes of Study :

1. **School of Humanities**

(i) M.A., (ii) M. Phil. and (iii) Ph.D. in English, Philosophy, Hindi, Telugu, Urdu, (iv) M.Phil. & Ph.D. in Applied Linguistics (Translation Theory & Practice), Comparative Literature.

2. **School of Social Sciences**

(i) M.A., (ii) M.Phil. and (iii) Ph D in Economics, History, Political Science, Sociology, Anthropology.

3. **School of Mathematics & Computer/Information Sciences**

(a) **Courses in Mathematics :**

(i) M.Sc., (ii) M.Phil. in Mathematics, Applied Mathematics, Statistics, (iii) Ph.D. in Mathematics.

(b) **Courses in Computer/Information Sciences :**

(i) Master of Computer Application (MCA) (6 sem), (ii) Diploma in Computer Application (DCA) (2 sem.), (iii) *B.Tech in Computer Science & Engg. (PG Course, 6 sem.) (iv) M. Tech in Computer Science/Artificial Intelligence & Robotics (3 sem.), (v) Ph.D. in Computer/Information Sciences.

**1988-89 admissions subject to clearance from Govt. of India.*

4. **School of Physics**

(i) M.Sc., (ii) M.Phil. in Physics with Material Science, Modern Optics/Laser Physics, (iii) Ph.D. in Physics.

5. **School of Chemistry**

(i) M.Sc , (ii) M.Phil in Chemistry, Chemical Education (for in-service candidates), (iii) Ph.D. in Chemistry.

6. **School of Life Sciences**

(i) M.Sc. in Life Sciences (Bio-Chemistry, Plant Sciences, Animal Sciences), (ii) M.Phil. in Bio-Chemistry, Plant Sciences, Animal Sciences, (iii) Ph.D. in Life Sciences.

7. **Sarojini Naidu School of Performing Arts, Fine Arts and Communication**

(i) M.A. in Dance, (ii) M A in Theatre Arts, (iii) M.A. in Painting, (iv) M.A. in Communication (Audio-Visual Media).

Entrance Examinations

(i) For M.A., M.Sc., M.C A , D.C.A. and B. Tech. Courses

Admissions are made on all-India basis, in order of merit taking into consideration the past academic record (25%) and performance of the candidates in the Entrance Examination (75%). These written examinations will be held from 24th June to 29th June, 1988 at **HYDERABAD, WALTAIR, DELHI, BOMBAY, CALCUTTA, MADRAS AND TRIVANDRUM.** (The University reserves the right to cancel any of these Centres if the number of eligible candidates is less than 100 from that Centre)

(ii) For M.Tech , M.Phil. and Ph.D. Programmes

The written examinations and interviews will be held only at HYDERABAD from **7th to 9th July.** Candidates attending the tests for these programmes will be eligible for reimbursement of II Class Railway fare as per rules detailed in the Prospectus 1988.

Reservation of Seats

15% and 7.5% of the seats in each course are reser-

admission is also provided. 3% of the seats in each course are reserved for physically handicapped candidates. Weightage will be given to sports persons and certain concessions to blind students as per UGC guidelines.

Eligibility

Detailed information regarding minimum qualifications and other requirements for various courses is given in the Prospectus 1988.

Candidates who have graduated under the 10+2+3 system of education are eligible to apply. Candidates who have graduated under 10+2+2 system of education are also eligible to apply only if they have successfully completed a one-year bridge course as per UGC guidelines.

Candidates whose results are awaited and also those who are due to appear for the final examination of the qualifying degree before the dates of the Entrance Examinations are also eligible. They must however submit the results of the final examination at the latest by 31st August, 1988, failing which, their provisional admission, if granted, will automatically stand cancelled.

How to Apply

Application form together with Prospectus 1988 containing detailed instructions including eligibility criteria for admission to each course/programme of study can be obtained :

(i) **In Person,** either from the Academic Section, **in the Campus at Gachi Bowli,** or from **"The Golden Threshold"** premises at Nampally Station Road, Hyderabad-500 001, against cash payment of Rs. 8/- for each set (one application and prospectus) (Rs. 2/- for each additional application form) from **20 4-1988.**

(ii) **By Post** : from the Deputy Registrar (Acad & Exams), University of Hyderabad, P.O. Central University, Hyderabad-500 134 by sending him (i) requisition, (ii) two self-addressed slips, (iii) Crossed Demand Draft drawn in favour of the Registrar, University of Hyderabad, on State Bank of India or on Andhra Bank or any nationalised Bank at Hyderabad for Rs. 10/- for a set of one application form and prospectus and Rs. 2/- for each additional application form.

Note : A separate application is required for each course. However, for the following courses one application for each set of courses (courses as mentioned below) is sufficient :

(i) M.Sc. Maths, (Applied Maths., Maths., Statistics); (ii) M.Sc. Life Sciences (Bio-Chemistry, Plant Sciences. Animal Sciences); (iii) M.C.A. and D.C.A.; (iv) M. Tech. (Computer Science, Artificial Intelligence and Robotics); (v) M. Phil. Maths. (Applied Maths., Maths., Statistics); (vi) M. Phil. in Physics, Modern Optics/Laser Physics; (vii) M. Phil. in Chemistry, Chemical Education; (viii) M. Phil. in Bio-Chemistry, Plant Sciences, Animal Sciences

Financial Assistance Available (FOR DETAILS REFER TO PROSPECTUS 1988)

Last date for receiving request for application by Post	10-5-1988
Last date for receiving completed applications.	20-5-1988

The University will not be responsible for any postal delay

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month' while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research scholars and students of education are welcome to use these resources. The Library is open from 9-00 a.m. to 5-30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

SOCIAL SCIENCES

Journalism

1. Balakrishna Lalkar, P.B. *Changes in the status of women as reflected in women's magazines of Kerala during the past 50 years.* Kerala. Dr. J.V. Vilanilam.

Psychology

1. Indu Prabha. *A study of the effectiveness of cognitive relaxation therapy in reducing self-reported anxiety and improving the performance of test anxious students.* HP. Dr. (Mrs.) Anup Sud.

2. Ravi Bhushan. *A study of identity of Indian youth as related to family adoptability, family cohesion and communication with parents.* HP. Dr. (Mrs) K.A. Shirali.

3. Sharma, Devender C. *A study of the relationship of organizational climate with organizational commitment and psychological well being.* HP. Dr. Sagar Sharma.

4. Sreenivasan, Tara. *Adjustment and academic achievements of children of working and non-working mothers.* Kerala. Dr. Rita Krishnan.

Sociology

1. Bawane, Suresh Ganpatrao. *Mathadi workers in Kolhapur : A sociological study.* Shivaji. Dr. S.N. Pawar.

2. Gupta, Krishna. *Shikshit vivahit karyarat mahilayen evam parivarik samayojan.* Devi Ahilya. Dr. V.C. Tongia.

3. Ravindranatha, M.N. *Education in a tribal community of Karnataka : An indepth study.* Shivaji. Dr. S.N. Pawar.

4. Upadhyaya, Renuka. *Balashram : Ek samajik arthik adhyayan, Indore Nagar ke bal shramikon ke adhyayan per adharit.* Devi Ahilya. Dr. V.C. Tongia.

Political Sceince

1. Ajai Singh. *Indian Government and politics.* BHU. Dr. R.P. Singh

2. Banerjee, Leena. *Some aspects of South Asian politics.* BHU. Dr. A.S. Mishra.

3, Jaspal Kaur. *The working of Gram Sabha and Gram Panchayat in the Block of Mehal-Kalan, District Sangrur of Punjab 1970-1987.* Panjab Dr. M.L Sharma.

4. Mohammad Khalil Ahmad *Political ideas of Sri Sayeed Ahmad Khan.* BHU. Dr. T.N. Pant.

5. Pare, Suuil Kumar. *Bhartiya Samvidhan mein samvaidhanik upchar ka adhikar : Ek sameekshatmak vivechan.* Devi Ahilya. Dr. B.R. Sadh.

6. Sharma, Khagendra Nath. *Monarchy in the world in the Post II World War period.* BHU. Dr. P.D. Kaushik.

Economics

1. Abdussalam, C.A. *Factors of socio economic back-*

wardeness in minority communities in India : A study with special reference to the Muslim community. Kerala. Dr. P.R. Gopinathan Nair.

2. Balwan Singh. *Madhya Pradesh ke anusuchit kshetron ke arthik vikas evam gair arthik tattva.* Devi Ahilya. Dr. M.V. Kapde.
3. Dixit, Jyotsna. *Indian economic problems.* BHU. Prof. P.K Bhargava.
4. Mathur, Vijay Kumar G. *Demographic trends of tribal area in South West Madhya Pradesh.* Devi Ahilya. Dr. V.D. Nagar.
5. Prabhakaran, P.V. *Repayment and default of agricultural loans in Kerala.* Kerala. Dr. Uma Devi.
6. Rajeswari, M. *Social Ecological implication of marxian. political economy.* Kerala. Dr. Uma Devi.

Law

1. Shukla, Tribhuwan. *Law and unorganised labour : A study of constitutional and social problem.* BHU. Shri V.S Chauhan.
2. Tiwary, Awadh Kishore. *Appeal and revision under the Income Tax Act, 1961.* BHU. Prof. M.C. Bijawat.

Commerce

1. Gupta, Ishwar Chandra. *Marketing strategy for deposit mobilization for banks : A case study of State Bank of Indore.* Devi Ahilya. Dr. R.D. Agarwal.
2. Mehrotra, Sanjay. *Internal financing in public enterprises in India.* BHU. Dr. Prashant Kumar.
3. Mishra, Prabhu Nath. *The changing structure of industrial finance in India, post 1969 period.* BHU. Dr. K.K. Mishra.
4. Parmar, Renu Singh. *Causes of industrial sickness in small scale industrial units in Agra.* BHU. Dr. K.M. Pandey.
5. Rai, Shyam Narayan. *An appraisal of working of Bihar, S.R.T.C.* BHU. Dr. J.S. Mathur.
6. Satya, Yaddanapudi. *Changing patterns of consumer-behaviour and its impact on marketing system : A case study of Shillong.* BHU. Dr. M.N. Mishra.
7. Singh, Jitendra Pratap. *Inter company investment in India : A critical study.* BHU. Dr. J.P. Singh.
8. Singh, Veer Abhimanyu. *Leather industry in U.P. : A critical appraisal of its working.* BHU. Dr. J.S. Mathur.
9. Surinder Kumar. *Public sector commercial banks in relation to economic development of Himachal Pradesh.* Panjab. Dr. Bidhi Chand.
10. Yadav, Umashankar. *Pricing policies of public enterprises in India : An evaluation.* BHU. Dr. Prasant Kumar.

Business Management

1. Das Gupta, Tarun Kumar. *Visual communication in advertising.* BHU. Dr. (Mrs.) Kusum Das.
2. Prajapati, Hiralal. *Modern trends in advertising and social issues.* BHU. Prof. A.P. Gajjar.

HUMANITIES

Religion

1. Ajit Kanwal Singh. *A critical study of sikh journalism before independence.* Panjab. Dr. Darshan Singh and Dr. S.P. Singh

Fine Arts

Drawing & Painting

1. Gokul Prasad. *Varanasi mural aur uski sahitya prishtbhumi.* BHU. Dr. (Miss) Bhanu Agrawal.
2. Srivastava, Reeta. *Contribution of eminent artists of India in the development of modern art.* BHU. Dr. R.N. Misra.

Music

1. Bhadury, Brahma Gopal. *Sangeet kshetra mein jyotish aur tantra ka prabhav.* BHU. Dr. R D. Chakravarty.
2. Bhadury, Rita. *Shiksha evam jeevan mein sangeet ka mahatva.* BHU. Dr. P.K. Dixit.

Language & Literature

English

1. Banerjee, Dharmadas. *The theme and imagery of death in Siegfried Sasson's poetry.* BHU. Dr. S.K. Sinha.
2. Dikhit, Hemlata. *Theme of loneliness in the novels of Anita Desai.* Devi Ahilya. Dr. R C. Ojha.
3. Morris, Beata. *R.K. Narayanan's short stories : A stylistic study.* Kerala. Dr. V. Syamala.
4. Parthasarathy, Mini. *The impact of 20th century non-realistic Western fiction on Malayalam fiction since 1960.* Kerala. Dr. V. Rajakrishnan.
5. Singh, Basudeo. *Social criticism in D.H. Lawrence's short stories.* BHU. Dr. A.K. Tripathy.
6. Singh, Padmakar Nath. *John Donna : A study of his poetic-vision.* BHU. Dr. N.K. Lal.
7. Tiwari, Ram Narayan. *The poetry of Harindra Nath Chattopadhyaya : A critical study.* BHU Dr. A K. Tripathi.
8. Yadava, Teerth Raj. *Plays of Henry James : A critical study.* BHU. Dr. S.R. Jalote.

French

1. Singh, Vipin Kumar. *Predicaments humaines, dans les Oeuvres de Raja Rao at Romain Rolland.* BHU. Prof. Prabhakara Jha.

Sanskrit

1. Radha Rani. *Vibhinna darshanik siddhanton kee ayurveda mein upadeyata.* BHU. Dr. L.D. Dwivedi.

Pali

1. Rai, Ram Kumar. *Suttanipata : Ek alochanatmak adhyayan.* BHU. Dr. P. Dubey.

Punjabi

1. Amar Pal Kaur. *Maharaja Ranjit Singh kal de kissa kav da alochanatmak adhyayan.* Panjab. Prof. Attar Singh.
2. Hardiljit Singh. *Bharti darshan de prasang vich Guru Tegh Bahadur dee bani da adhyayan.* Panjab. Dr. Randhir Singh Chand.

Hindi

1. Anirudhan, B. *Ananda Sankara Madhavan ke sahitya ka anusheelan aur Hindi sahitya ke vividh vidhavan ko unka yogadan.* Kerala. Dr. N. Chandrasekharan Nair.

2. Ashok Kumar. *Kabir : Ek punarmulyankan : Samaj sudharak ke roop mein.* BHU Dr. Ibha Gupta.

3. Jain, Asha. *Maithili Sharan Gupta ke Saket aur Balkrishan Sharma Navin kee Urmila : Prabandh kavya ka tulnatmak adhyayan.* HS Gour. Dr. L.N. Dubey.

4. Kastavar, Rekha. *Riti mukt kavya dhara mein prem aur shringar kee vivechna.* HS Gour. Dr. R.D. Mishra.

5. Mishra, Jagdish Prasad. *Premchand ke upanyason mein sangharh chetna.* HS Gour. Dr. H.P. Singh.

6. Mishra, Jageshwar. *Ambica Prasad Divya ke natya sahitya ka anusheelan.* HS Gour. Dr. B.D. Shukla.

7. Mishra, Krishna Kumari. *Sur sahitya mein bimb vidhan.* BHU. Dr. Ram Naresh Varma.

8. Mishra, Sarla. *Riti yugeen kavya dhara ke pariprekshya mein Padmakar ke kavya ke sanskritik paksh ka anusheelan.* HS Gour. Dr. R.D. Mishra.

9. Mishra, Shashi Bala. *Yashpal ke katha-sahitya mein nari-purush sambandh.* BHU. Dr. S.S. Shukla.

10. Rajendra Prasad. *Ghananand ke virah kavya kee bhakti shastriya bhumika.* BHU. Dr. S.N. Dwivedi.

11. Rajoria, Kanti. *Bhakti kaleen pramukh kavion ka yatharth bodh visheshkar Kabir, Jayasi, Sur aur Tulsi ke sandarbh mein.* HS Gour. Dr. H.P. Singh.

12. Rathore, Ramesh Chandra. *Sathottar Hindi upanyason mein nar nari sambandh : Ek anusheelan.* Devi Ahliya. Dr. (Kr.) C.K. Rahene.

13. Rawal, Veena. *Shivani : Vyaktitva evam krititva.* Devi Ahilya. Dr. (Smt.) C.K. Agnihotri.

14. Salma Khatoon. *Premchandottar Hindi aur Urdu kahani sahitya ka tulnatmak adhyayan, san 1936 se 1960 tak.* HS Gour. Prof. K.K. Jain.

15. Shahzadi. *Swatantrayottar Hindi ke Muslim sahityakar.* BHU. Dr. J.A. Zafri.

16. Shashi Lata. *Chhayavadi yug evam Mahadevi Verma ke kavya ka swaroop.* BHU Dr. Gopal Narayan Mishra.

17. Sobhana Raj, J. *Bharatendu kaleen Hindi nibandh.* Kerala. Dr. N.E. Vishwanatha Iyer.

18. Shukla, Jayant Kumar. *Madhyakalin aitihasik antar drishti kavion kee.* BHU. Dr. Sri Niwan Pandey.

19. Shukla, Rambal. *Leela kavya parampara mein Mahakavi Pancham krit Shyamayan ka sampadan evam sahityik anusheelan.* HS Gour. Dr. Balbhadra Tiwari.

20. Singh, Jyoti. *Upanyaskar Shri Naresh Mehta ka upanyason ka anusheelan.* Devi Ahilya. Dr. (Smt.) C.K. Agnihotri.

21. Tewari, Nilima. *Hindi ke samsamyik upanyaskar aur madhya varga.* HS Gour. Dr. Balbhadra Tiwari.

22. Tewari, Syali. *Gobind Mishra ke sahitya ka anusheelan.* HS Gour. Prof. K.K. Jain.

23. Thakur, Raghuvir Singh. *Mahadevi Verma ke sahitya mein manav mulyon kee parikalpana aur uska swaroop.* HS Gour. Dr. Virendra Mohan.

24. Thakur, Urmila. *Ramcharit Manas ke patron ka manovaigyanik adhyayan.* HS Gour. Dr. B.D. Shukla.

25. Uma Devi. *Shivani ka katha sahitya mein prachin aur adhunik jeevan padhtti ka samanvya.* Devi Ahilya. Dr. D.K. Chauhan.

Urdu

1. Ansari, Mohammad Yaqub. *Habib-ur-Rahman Khan Shervani. Hayat aur karname.* BHU. Prof. H.C. Nayyar.

2. Mohammad Nasr Ullah. *Urdu Shairi mein Islami qadren.* BHU. Prof. H.C. Nayyar.

3. Najma Begum. *Altaf Husain Hali : Hayat aur karname.* BHU. Dr. Qamar Jahan.

4. Shaheda. *Urdu aur Hindi afsana nigari ka Taqabuli mutalea.* BHU. Dr. Qamar Jahan.

Bengali

1. Ray, Geeta. *Tarashankarer kathasahitya rarher loksamaj O sanskritir parichay.* BHU. Dr. S.N. Das.

Telugu

1. Kaudinya Sai, D. *Subject related to the linguistics study : Primary and secondary derivative in Telugu.* BHU. Dr. G. Trivikramaiah.

2. Satyanarayana Raju, Manthana Venkata. *Poetry of Vemana and Tiruvalluvar Ist relevance to the present day society.* BHU. Dr. G. Tirvikramaiah.

Geography

1. Tiwari, Shivakant. *Indore Jile mein grameen adhivason ka sthanik pratiroop evam akariki : Ek vishleshnatmak adhyayan.* Devi Ahilya. Dr. S.H. Sheikh.

History

1. Bhatia, Pritpal Singh. *Pichhre Jile Chhindwara mein swadheenta sangram 1857-1947.* HS Gour. Dr. S.S. Chauhan.

2. Khan, Naseem Bano. *Bharatiya rajniti mein Indira Gandhi ka yogdan.* HS Gour. Dr. M.P. Pathak.

3. Khan, Shanoz Bano. *Madhya Pradesh mein swatantrata sangram mein mahilaon ka yogdan.* HS Gour. Dr. G.S. Tripathi.

4. Kwangsu Lee. *Koreas' cultural contact with early India : A comparative study of art and literature.* BHU. Prof. L.K. Tripathi.

5. Mishra, Rakesh Kumar. *Malhar ka puratattva, pracheen kal se 1300 isvi tak.* HS Gour. Dr. Shyam Kumar Pandey.

6. Pandey, Rajeev Ranjan. *Pauranik vangmaya mein asur sanskriti ka vivechan.* BHU. Prof. Lallanji Gopal.

7. Pandey, Upama. *Mahakaushal mein swatantrata andolan : Pandit Dwaraka Prasad Mishra ke vishesh sandarbh mein, 1920-1947.* HS Gour. Dr. G.S. Tripathi.

8. Pawar, Ruby. *Kautilya ka earth sanbandhit drishtikon.* BHU. Dr. T.P. Verma.

9. Singh, Yashwanti. *Holkar Rajya mein bhoo rajasva prashasan, 1776 se 1886 tak.* Devi Ahilya. Dr. (Smt.) Kalpna Ganguly.

10. Soni, Damyanti. *Samaj sudharak ke roop mein Swami Dayanand Saraswati ka aitihasik mulyankan.* HS Gour. Dr. M.P. Pathak.

11. Tripathi, Vijay Kumar. *Bharatiya Rashtriya Andolan 1885-1947 aur Bharataya Samvaidhanik vikas 1892-1947 ke parasparik prabhav ka ek adhyayan.* HS Gour. Prof. B.N. Sharma.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Library Science

1. Kaushik, Purnima. *Universe of subjects and classification schemes with special reference to Natural Sciences.* Rajasthan. Dr. (Mrs) Pushpa Dhyani.

Psychology

1. Parvathi, S. *Motivation, time perspectives and managerial behaviour among middle management personnel.* Madras.

2. Rajendran, R. *Efficacy of a behavioural program in managing the academic stress and improving academic performance of high school boys.* Madras.

3. Shrivastava, Vijay Kumar. *Psycho-social barriers in the adoption of family planning devices in tribals of Madhya Pradesh.* HS Gour. Prof. Jai Prakash.

4. Singh, Usha. *A study of anxiety level during pregnancy.* BHU. Prof. M.S.L. Saxena.

5. Sugathan, M. *Personality patterns of creative artists.* Kerala. Dr. H. Sam Sananda Raj.

6. Suman, H.C. *Reciprocity, physical attractiveness, personality similarity, dissimilarity as factors in interpersonal attraction.* AMU. Prof. Afzal Qureshi.

7. Wilson, P.C. *Personality characteristics of the physically handicapped.* Kerala. Dr. P. Gopala Pillai.

Sociology

1. Bisht, S. *Krishi naveekaranon ka prasar aur angeekaran: Kumaun ke chayanit gramon ke krishakon ka samajshastriya adhyayan.* Kumaun. Dr. S.S. Pandey.

2. Bisht, U.S. *Shilpkaron mein samajik gatisheelata evam paristhiti jagrookta : Almora Janpad ke shilpkaron, anusoochit janjatiyon ka samaj shastriya adhyayan.* Kumaun. Dr. S.S. Chauhan.

3. Ghosh, Syamalkumar. *The naxalite student youth movement of Calcutta, 1970 : A political sociological study.* Calcutta.

4. Hegde, Sasheej. *Law, justice aud society : A study in the sociology of law.* Bangalore. Dr. N. Jayaram.

5. Jain, Rajendra Kumar. *Jhabua Jile ke Bheelon ka ek samajshastriya adhyayan.* Devi Ahilya.

6. Joshi, Kaushalya. *Laghu udyog ke mazdooron ka samaj vaigyanik adhyayan, Mau ke hathakaragha udyog mein karyarat mazdooron per adharit.* BHU. Dr. (Smt.) M. Biswas.

7. Kannan, R. *The impact of mass communication process in Senneerkuppan Village : A rural communication study.* Madurai.

8. Karunanithi, G. *The role of caste and class in industrial organisations in Tamil Nadu : A comparative study of two industrial organisations.* Madurai.

9. Mishra, Ajay Kumar. *Gramin netritva ka ubharate pratiman : Varanasi ke Chakiya Vikas Khand ke kuchh chune huye gramon per adharit ek samajvaigyanik adhyayan.* BHU. Prof. S. Tripathi.

10. Pradhan, Rajendra Pd. *Domestic and cosmic rituals among the Hindu Newars of Kathmandu, Nepal.* Delhi.

11. Rai, Vikramaditya. *Swadhinottar Bhartiya kisan andolan ka badalata swaroop, Ghazipur ke sandarbh mein 1949 se 1970 tak ka samaj-vaigyanik adhyayan.* BHU. Dr. Anand Kumar.

12. Ray, C.N. *Impact of rural development on beneficiaries : A comparative study of pre 1977 and post 1977 rural development programme in West Bengal.* Kumaun. Dr. G.K. Agrawal.

13. Shrikantaiah, M.K. *Problems and prospects of rural education : A sociological study.* Bangalore. Dr. N. Jayaram.

14. Singh, Poonam. *Varanasi nagar kee uchcha shikshapropt karyojit istriyon ka ek samaj vaigyanik adhyayan.* BHU. Dr. Anand Kumar.

15. Singh, Rita. *Dohari bhumika mein karyojit mahilayen: Delhi Nagar Nigam ke vivahit karyojit mahilaon per adharit samaj vaigyanik adhyayan.* BHU. Dr. A.L. Srivastava.

Political Science

1. Bakshi, Jyotsna. *Soviet Union's attitude towards India, 1962-1971.* Panjab.

2. Borgohain, Rooplekha. *Politics of land reforms in Assam.* Gauhati. Dr. V.V. Rao.

3. Chaudhary, Pooran Singh. *Bharat mein nyayik punaravalokan aur samvidhanik vikas.* Rajasthan. Dr. Madhukar Shyam Chaturvedi.

4. Dubey, Babul Nath. *Nepal aur Soviet Sangh ke beech sambandh.* BHU. Prof. S.K. Jha.

5. Jaiswal, Kamala Kant. *U.P. Vidhan Sabha mein prashnon ka ek pratikriyatmak adhyayon, 1967-71 :* Avadh. Shri R.C. Gupta.

6. Kapoor, Kum Kum. *M.N. Roy ka manogra manav vad.* Rajasthan. Dr. K.S. Saxena.

7. Karki, S.J. *Political participation in Nepal : A study of the post-referendum politics.* Kumaun. Dr. S.K. Jha.

8. Mishra, Neelam. *The socialist orientation of Jawahar Lal Nehru.* BHU. Dr. H.N. Tripathi.

9. Pathak, Girja Kishor. *Small power-big power relations: A study of Nepal's China Policy 1955-72.* BHU. Dr. M.D. Dharmadasani.

10. Patnaik, Sudhansu Kumar. *A systems approach to the analysis of Pakistan's foreign policy, 1947-71.* BHU. Prof. K.P. Misra.

11. Shrivastava, Rashmi. *Measurement of political efficacy among Indian students and its effects upon political system. D. Litt.* Vikram.

12. Shukla, Anil Kumar. *Comparative studies of sixth and seventh Lok Sabha.* Avadh. Dr. Mithila Pandey.

13. Singh, Om Prakash. *Uttar Pradesh Vidhan Sabha, 1985 ka chunav.* Avadh. Shri R.C. Gupta.

14. Suryanarayana Sastry, Dendukuri. *Land reforms in India under Congress Rule, 1947-77.* Andhra.

15. Sushila, R. *Rawls and his critics.* Delhi.

16. Thakur, J.S. *India's role in the non-aligned movement.* Kumaun. Dr. S.K. Jha.

17. Verma, P.L. *Kumaun mein anusuchit janjati mein rajnaitik chetna ka vikas : Pithoragarh Janpad ke sandarbh mein Shouka Janjati ka ek vikasatmak adhyayan.* Kumaun. Dr. D.C. Pandey.

Economics

1. Arunachalam, R. *Poverty, affluence and agrarian structure : The study of a village in Tamilnadu.* Madras.

2. Bhaskaran Nair, P.V. *Finances, costs and returns of university education in Kerala : A study of Calicut University.* Calicut. Dr. P.P. Pillai.

3. Gariwala, B.J. *Impact of regional rural banks on rural economy with special reference to Gujarat.* Bhavnagar. Dr. R.S. Mehta.

4. Koteswara Rao, Mailamuri. *Patterns and determinants of rural-urban migration in Andhra Pradesh.* Andhra.

5. Pandya, Niranjan Maneklal. *Working of the international monetary system : A critical evaluation.* Bhavnagar. Dr. R.S. Mehta.

6. Ramachandran, V.K. *Socio-economic characteristics of agricultural labourers in a vanguard agrarian region : A case study of Gokilapuram Village, Madurai District.* Madras.

7. Sharma, Joginder Kumar. *Operational efficiency of Unit Trust of India.* Rajasthan. Dr. Sugan Chand Jain.

8. Singh, Lal Bahadur. *Azadi ke bad Bharat kee jan sankhya neeti.* Avadh. Dr. A.D. Sharma.

9. Singh, Surendra Pratap. *Ekikrit gramin vikas karyakram evam arthik vikas : Vikas Khand Jhanjhari Gonda U.P. : Ek pratik adhyayan.* Avadh. Dr. J.P. Singh.

Law

1. Khetarpal, Narinder Kumar. *Monopolistic and restrictive trade practices : A legal analysis.* Delhi.

2. Pushpinder Kaur. *Woman labour in India : A socio-legal study.* Panjab.

3. Sehgal, Brinder Pal Singh. *Law, women and population in India : A study of the laws regulating fertility of women.* Jammu. Dr. S.G. Singh.

Public Administration

1. Surya Prakash Sastry, M. *The administration of gram panchayats in Andhra Pradesh : A study of two outstanding panchayats.* Osmania.

Military Studies

1. Arora, V.N. *Nuclear weapons and its impact on pattern of war.* Avadh. Dr. V.W. Wagh.

2. Khan, Jawad Asgar. *Air power in India's nationa security.* Avadh. Dr. Gyan Chandra Srivastava.

3. Shukla, Radhe Raman. *Dakshin poorva Asia mein shanti sthapana tatha Bharatiya prayas.* Avadh. Dr. Gyan Chandra.

4 Singh, Arun Kumar. *Bharat mein N.C.C. sangathan ka mulyankan.* Avadh. Dr. O.P. Shrivastava.

5. Singh, Kamal Narain. *Bharat mein sikh sainya shakti aur Maharaja Ranjit Singh : Ek adhyayan.* Avadh. Dr. Sitaram Shukla.

6. Singh, Kapil Dev. *Prachin Bharat yuddh vyavastha : Mahakavyon ke adhar per.* Avadh. Dr. Prem Prakash Singh.

7. Singh, Pankaj Bhane. *Kashmir problem and its security implications : A geo-politico-legal and geostrategic analysis.* Avadh. Dr. B.S. Singh.

8. Singh, Shailendra Nath. *Prachin Bharat mein yuddh kee achar sanhita.* Avadh. Dr. Prem Prakash Singh.

9. Tiwari, Nirankar Prasad. *Prachar manovaigyanik yuddh sankriya ke astra ke roop mein.* Avadh. Major S.K. Pradhan.

10. Tiwari, Ved Prakash. *Bharat pratiraksha mein Kanpur ka yogdan, 1773 se 1983.* Avadh. Dr. Sitaram Shukla.

Education

1. Agrawal, Rekha Rani. *A study of psychological characteristics of the disadvantaged female learners.* BHU. Prof. R.P. Verma.

2. Hemalatha, C. *Receptivity to adult education programme and factors influencing the process.* Osmania.

3. Joshi, D.D. *Study habits, sex, security insecurity and locus of control as determinants of academic achievement among students of Kumaun Hills.* Kumaun. Dr. N. Hasnain.

4. Kapoor, Rita. *Study of factors responsible for high and low achievement at the junior high school level.* Avadh. Dr. S.L. Chopra.

5. Misra, Yogendra Prasad. *Dimensions of rural development and adult education programme : A study of Varanasi District.* BHU. Dr. R. Upadhyaya.

6. Puri, Kanan. *Personality traits and self concept of 16-18 years old under achievers.* Avadh. Dr. (Mrs.) Kamala Chopra.

7. Rathaur, G.S. *A comparative study of classclowns and non classclowns on some cognitive and personality variables.* Kumaun. Dr. A.R. Bisht.

8. Ray, Pradiptaranjan. *An assessment of educational enterprise of Christian Missionaries in the District of Nadia : Its legacy and present state.* Calcutta.

9. Sharma, Manjula. *Bharat visheshkar Madhya Pradesh mein agat samaj kee shaikshanik gatividhiyon ka samalochanatmak adhyayan.* Durgavati. Dr. (Mrs.) Sushila Vaidya.

10. Singh, Trilochan. *Avadh Vishwavidyalaya ke sambadh mahavidyalayaon mein adhyanrat onusuchii jati evam janjati ke vidyarthiyon kee shaikshik samasyaon ka ek adhyayan.* Avadh. Dr. Kanti Mohan Shrivastava.

11. Sookmaung, Teerapong. *A comparative study of the qerception of problems by the administrators of formal and non-formal educational institutions at the secondary stage in Bangkok area of Thailand.* Panjab.

12. Srivastava, Deepa Rani. *A study of prospective professional women : Psychological and environmental.* BHU. Dr. S.S. Srivastava.

13. Sushma. *Effectiveness of concept attainment and biological science inquiry models for teaching biological sciences to VIII class students.* BHU. Dr. T. Singh.

14. Tripathi, Pratibha. *A comparative study of the correlates of academic attainment of pupil of junior high school.* Avadh. Dr. B.P. Singh.

Commerce

1. Agarwal, Manju. *Tax incentives and investment behaviour.* Delhi.

2. Anil Kumar. *A study of financial management of sick cotton textile mills in the Northern Region.* Panjab.

3. Bansal, C.L. *A microanalytical study of the Boards of Directors of Corporate Leaders in India.* Delhi.

4. Deolankar, Vivek Shankarrao. *Management of small scale industries in a backward region, Marathwada.* Marathwada. Dr. S.A. Somwanshi.

5. Gupta, Raj Kumar. *Man power management and human resource accounting.* Delhi.

6. Puran Chandra. *Panchvarshiya yojnaon mein Kumaun ka arthik vikas : Ek tulnatmak adhyayan.* Kumaun. Dr. N.S. Rana.

7. Ram, Gulab Chand. *Bank credit to corporate sector in India after nationalisation.* BHU. Dr. V.S. Singh.

8. Ramjas. *Trade union and productivity : A study of selected industries in India.* Delhi.

9. Uppal, Kashmir Singh. *Sarvajanik upakramon mein shram prabandh sambandh : BHEL (Bhopal) ka ek adhyayan.* HS Gour. Prof. R.K. Bharti.

10. Vijaya Raju, S. *Industrial relations in cement industry of Coastal Andhra Pradesh : A study of worker-management and union management relations.* Nagarjuna. Prof D. Dakshina Murthy.

11. Yadav, G.R. *Promises and performance of State Bank of India : A case study of the Almora District.* Kumaun. Dr. R.M. Saksena.

Home Science

1. Seetharaman, Premavathy. *Food processing technology—development and extension to rural households.* Delhi.

Business Management

1. Nizam Mohammed. *Export marketing problems : A case study of the problems and potentials of Indian consumer durable industries.* Rajasthan. Dr. Pradeep Kumar Jain.

2. Rathore, Kum Kum. *Export promotion in India and the role of state trading agencies.* Rajasthan. Prof. R.N. Singh.

Administration in Indian Agricultural Universities

(Continued from page 7)

Decentralization of Powers

At present all the powers are centralized at the level of Vice-Chancellor and all and every sundry matter goes to Vice-Chancellor either for his approval, perusal or orders. The Vice-Chancellor because of his heavy work load does not find time to go into the details and therefore there is possibility of errors. Further other officers in the University who have no powers are unable to exercise control over their subordinates. The tendancy to shirk the responsibility is also increasing because of this situattion. It is, therefore, proposed that there should be decentralization of power and the staff should be held responsible for inefficiency if any, even after delegation of powers.

Training of Staff

On the lines of the faculty upgradation scheme, it is necessary that the supporting staff is also sent for training in administrative matters at different institutions. If felt necessary, the administrative staff may be sent for training abroad. Periodical trainings will help in acquiring latest knowledge in administration and the same can be efficiently used while working in the University.

Action Plan

In the beginning of the year every staff member should be given an action plan for the work which he is expected to do during the entire year. At the end, a review be taken. The annual grade increment should not be released unless the performance during the year is satisfactory. If the performance is not satisfactory, the concerned official should submit reasons which shall be considered by the concerned Director and on recommendation of the concerned Director, further actions be decided. For extra-ordinary performance, incentives may be considered.

This is not an exclusive list. However, time has come to think in making the university administration more efficient. ☐

Tata Institute of Fundamental Research

HOMI BHABHA ROAD, BOMBAY-400 005

Invites applications for admission as RESEARCH SCHOLARS for the year 1988-89

Advt. No. 12/88

The Institute offers a programme of Graduate Study in several branches of Physical, Chemical and Computer Sciences. The prime objective of this programme is to train scholars in the methodology of fundamental research. The work also enables the scholar to earn a Ph.D. degree of Bombay University. Selection for the academic year 1988-89 will be made on the basis of interviews to be held in Bombay between July 1 and July 15, 1988. The academic programme will start in the first week of August 1988.

The basic requirements for admission are exceptional talent and motivation for research. Candidates who are keen to pursue a research career and who have an outstanding academic record, need apply. Candidates should have completed Master's Degree (M.Sc., M. Tech. etc.) before joining this programme (students who have appeared for the Master's degree examination, may also apply). For Physics, candidates with Master's degree in Applied Mathematics or Astronomy may also apply. B.E.'s and B. Tech's may also apply for Computer Science and Solid State Electronics. Exceptional B.E.'s and B. Tech.'s may also be considered for other areas, if they should be interested. For Chemical Physics, candidates with Master's degree in Chemistry, Physics or Biochemistry, may apply.

Admission is highly selective and during this year only a few candidates may be admitted in each of the following areas :

THEORETICAL STUDIES	:	(Theoretical high energy physics; nuclear theory; condensed matter theory; theoretical astrophysics).
EXPERIMENTAL SPACE SCIENCES AND ASTRONOMY	:	(Cosmic rays and solar physics; x-ray and gamma ray astronomy; high energy astro-physics; optical astronomy; infrared astronomy; radio astronomy; gravitation).
EXPERIMENTAL HIGH ENERGY PHYSICS	:	(High energy cosmic rays; experimental high energy physics using underground detectors, bubble chambers and high energy accelerators abroad).
EXPERIMENTAL NUCLEAR AND ATOMIC PHYSICS	:	(Nuclear interactions, heavy-ion collisions using pelletron, nuclear spectroscoy; nuclear reactions, atomic collisions).
EXPERIMENTAL SOLID STATE PHYSICS AND SOLID STATE ELECTRONICS	:	(Magnetism; superconductivity; low temperature physics; semiconductor physics).
CHEMICAL PHYSICS	:	(Bio-inorganic chemistry; fast reactions; energy transfer; molecular biophysics; laser spectroscopy).
COMPUTER SCIENCES	:	(Speech and digital systems; computer communication; Theoretical Computer Science, Logic programming, Programming Methodology).

After completion of the programme, outstanding candidates have the possibility of absorption into the regular academic staff of the Institute.

More details about fields of study in each area will be supplied with the application form.

Financial Assistance : Research Scholars will be paid a fixed monthly honorarium of Rs. 1800/-. Based on satisfactory performance, the honorarium may be raised to Rs. 2,000/- per month subsequently. Appointments are made for a year at a time but are normally renewable annually upto 5 years, subject to evidence of satisfactory performance.

Travelling Allowances : Each candidate called for interview, will be paid 1-1/3 railway fare each way by second class (not airconditioned) and a sum of Rs. 35/- as halting allowance for the day on which he/she is interviewed.

Applications : Applications in the prescribed form which can be obtained from the Administrative Officer (Establishment) on request alongwith 23.8 x 10.8. cms. self addressed stamped (Rs. 1.40) envelope should reach the Institute not later than May 31, 1988. Requests for the application forms will be entertained only upto May 20, 1988. In the application, the candidate must clearly specify his/her **area of interest**.

National Council of Educational Research & Training

SRI AUROBINDO MARG : NEW DELHI-110 016

Advt. No. 125

Applications are invited for the following posts :

1. **Three Posts of Professors** : (1) Two in Education ; and (2) One in English. **Qualifications**: (a) An eminent scholar with published work of high quality actively engaged in research in the relevant subject. Ten years' experience of teaching and/or research. Experience of guiding research at doctorate level. OR An outstanding scholar with established reputation who has made significant contribution to knowledge. (b) Those who have put in 10 years' service in research/development/teaching in the Council of which atleast five years should be in the capacity of Reader in the area, can also apply.

2. **Nine Posts of Lecturers:** (1) Three in Chemistry (2) Two in Botany, (3) One in Agriculture and one each in (4) Zoology, (5) Sociology and (6) Psychology. **Qualifications**: (a) A Doctoral degree or research work of an equally high standard; and (b) Good academic record with atleast second class (C in the seven point scale) Master's degree in the relevant subject from an Indian University or an equivalent degree from a foreign University.

Note: (i) One post each in Botany and Agriculture are reserved for SC candidate. One post in Chemistry reserved for ST candidate. (ii) 25% of the posts of Lecturers and above are earmarked for being filled up by deputation/contract for a period of 2 to 3 years from school system in the States viz. SCERTs/SIEs, Teacher Training Institutes, Universities with Departments of Education etc. provided they filfil the prescribed qualifications. Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in (b) above. Provided further that if a candidate possessing a Doctoral degree or equivalent research work is not available or is not considered suitable, a person possessing a good academic record, (weightage being given to M. Phil or equivalent degree or research work of high quality) may be appointed provided he/she has done research work for atleast two years or has practical experience in a research laboratory/organisation on the condition that he/she will have to obtain a Doctoral Degree or give evidence of research of high standard within 8 years of his/her appointment. failing which he/she will not be able to earn future increments until he/she fulfils these requirements.

3. **Two Posts of PGT in Electronics** (Reserved for SC/ST candidates). **Qualifications**: Diploma in Eletronics Engineering from a recognised Polytechnic with three years teaching experience. Preference

ics). Experience of teaching is not essential in their case.

4. **One Post of Laboratory Technician (Psychology** (Reserved for SC) **Qualifications** : Essential : Second class Master's degree in the Psychology: Desirable: (a) Degree or Diploma in Education. (b) Experience of Maintaining Psychology Laboratory. (c) Diploma in Educational and Vocational Guidance.

Scale of Pay and Age Limit as on 1.4.1988.

1.	Professor	Rs. 4500-7300	Below 45 years
2.	Lecturer	Rs. 2200-4000	Below 35 years
3.	P.G.T.	Rs. 1640-2900	Below 40 years
4.	Lab. Technician	Rs. 1640-2900	Below 30 years

Note : (a) There is no age limit for the employees of the Council. Age concessions allowed for SC/ST candidates, displaced persons and Ex-servicemen as per Govt. of India instructions. (b) The number of vacancies in each subject is tentative and liable to change. (c) All employees of the Council can be transferred to any of the establishments of the Council, anywhere in India. (d) If a candidate is found to be of exceptional merit relaxation of qualifications, experience and age etc., may be given by the Selection Committee at its discretion. (e) The prescribed qualifications are minimum and mere possession of the same does not entitle candidates to be called for interview. When the number of applications received in response to the advertisement is large, it will not be possible or convenient for the Council to interview all these candidates. The Council may then restrict the number of candidates for interview to a reasonable limit, on the basis of qualifications and experience higher than the minimum prescribed in the advertisement.

Application forms can be obtained from the address given below by enclosing an unstamped envelope (28 cms × 12 cms) giving name of the post, serial number and advertisement number. The outer cover should be marked 'Request for Application Form. Separate application should be submitted for each post.

Those employed in Govt./Semi-Govt./Autonomous Organisations should send their applications through proper channel. They may however, if they so desire, submit advance copy of their Bio-data direct to the Council enclosing the application fee, if applicable.

Completed application form alongwith attested copies of certificates of qualifications and experience etc., and a crossed Indian Postal Order for Rs. 8/- (No fee for SC/ST candidates) in favour of Secretary. NCERT should reach him by **17th May, 1988**.

Applications/Bio-data received without prescribed fee and/or received after the closing date will not be entertained.

MINISTRY OF HUMAN RESOURCE DEVELOPMENT
(Department of Education)
JAPANESE GOVERNMENT SCHOLARSHIPS, 1989-90

Applications are invited from Indian nationals for the award of thirteen (13) research scholarships offered by the Government of Japan for Post-graduate study/research. Two scholarships are reserved for Japanese Language & Literature. The jubjects in which scholarships will be awarded are given below :

(1) Microprocessor Applications/Technology; (2) Opto-Electronics; (3) Fibre-optics; (4) Quality and Reliability Engineering (as applied to various systems like Electricity and Power, Railways Heavy Industry, Heavy Electricals, Electronics and Communications etc.); (5) Robotics; (6) Remote Sensing; (7) Laser Technology; (8) Textile Engineering/Technology. (9) Bio-technology; (10) Ship-building; (11) Biological Oceanography; (12) Pedagogy; (13) Fine Arts (Painting Sculpture, Aesthetics); and (14) Japanese Language and Literature.

DURATION : 1-1/2 to 2 years.

VALUE : Maintenance allowance of 1,76,000 Yen per month (in FY 1987), arrival allowance of 25,000 Yen, Field study allowance, Tuition and Examination fees exempted; part of the medical expenses in Japan Paid; Accommodation will be arranged.

PASSAGE COST : Tourist class air-ticket from India to Japan and back will be provided by the Japanese Government.

AGE LIMIT : Below 33 years on 1st April, 1989 (i.e. born on or after 2nd April, 1956) relaxable upto 2 years for Scheduled Caste/Scheduled Tribe candidates.

QUALIFICATION : The minimum qualification for Textile Engineering, Ship-building and Japanese Language & Literature would be a bachelor's degree in a subject or a related field. The minimum qualification in Fine Arts would be a bachelor's degree or a diploma in Fine Arts. For other subjects the minimum qualification would be a Master's degree in the subject concerned or a related field.

ESSENTIAL EXPERIENCE : Except for subjects at S. No. 13 & 14 above, after obtaining the prescribed qualifications, candidates should possess at least two consecutive years of practical research/teaching experience as on **October 1, 1988.**

NOTE : (i) Only candidate with 60% marks and above at the Graduate/Post-graduate level, according to the minimum qualifications prescribed, will be considered Where Grades are mentioned the candidate must indicate the conversion formula adopted by the University/Institution. (ii) The following papers must be attached with the application:—(a) Attested copy of the certificate certifying the date of birth. (b) Attested copy of marks sheet of the qualifying examination. (c) Attested copies of all degrees/diplomas certificates, etc. (iii) Equivalent foreign degrees will be considered. (iv) Candidates, who have already been abroad for study/research/training either on a scholarship or on their own, are eligible to apply only if they have been in India for at least three years after return from abroad. Application of candidates, who are abroad, will not be considered (v) Age and experience may be relaxed maximum upto three months at the discretion of the Selection Committee in the case of exceptionally outstanding candidates. (vi) Master's degree means M.A./M.Sc. M.Tech./M.E. but not M.Phil. or pre. Ph D. (vii) The candidate should have adequate knowledge of Geographical situation, culture and heritage of India and Japan. Candidates having knowledge of Japanese Language will be given preference. (viii) Applications in subject field other than the above will not be considered. (ix) Candidates who do not possess the requisite qualifications need not apply. (x) the application form should accompany a crossed Postal Order of Rs. 5/- (and Rs. 1.25 in case of Scheduled Caste/Scheduled Tribe and other backward classes) payable to the Secretary, Ministry of Human Resource Development, Department of Education, New Delhi. (xi) Applications which do not contain Postal Order will be considered incomplete and will not be considered. The candidate should apply for the above scholarship on a plain paper, furnishing the following details/particulars to the **Secretary, Ministry of Human Resource Development (Department of Education), External Scholarships Division, Section, ES-3, Room No. 516, B-Wing, Shastri Bhavan, New Delhi-110 001 by 15th May, 1988.**

APPLICATIONS RECEIVED LATE WILL NOT BE ENTERTAINED.

FORMAT OF APPLICATION

1. Name of the Scholarships Scheme :
2. (a) Subject (b) Sub-subject
3. Name of the candidate (in Block Letters) with full mailing address
4. Date of Birth and the State to which the candidate belongs
5. Whether a member of SC/ST or a tribal or aboriginal community. If so, give full particulars
6. Academic record starting from High School/Higher Secondary :

Name of the University/Board/Institution	Examination(s) passed	Year of Passing	Division/Class with position, if any*	Percentage of marks obtained & Position, if any.	Subject taken

*(In case no division/class is awarded and only grading is done, the conversion formula adopted may be mentioned.

7. Details of Professional/Practical Training and Research Experience, specifying the period and number of papers published, previous employment with name and date of employment, if any.

8. Nature of the present employment with date of appointment, designation and the name & address of the employers.

9. Have you been abroad ? If so, give full particulars of the country and the period. Also mention the year and month of return to India.

10. Proposed programme of study/research/training, specifying (i) the work at present engaged in : (ii) Nature and programme of study/research desired; (iii) future plans/prospects after the proposed studies/research; and (iv) how are these related to the technical or economical development of India?

11. Number and date of Crossed postal order of Rs. 5/- (Rs. 1.25 in case of SC/ST candidates etc.) attached with the form.

NOTE: Employed persons must send their application fully sponsored by the employers. However, advance applications will be considered provisionally pending sponsorship by employers.

Place : Date : (Signature of Candidate)

davp 88/13

CLASSIFIED ADVERTISEMENTS

KUMAUN UNIVERSITY
NAINITAL

Advertisement No. 54 **Dated : 7-4-1988.**

Applications for the following posts are invited by **14 May, 1988** on prescribed form obtainable from the Office of the Registrar Kumaun University, Nainital 263001 (U.P.) by sending self addressed 9" x 6" envelope and crossed postal order or Bank Draft for Rs. 8/- payable to the Finance Officer, Kumaun University, Nainital. Money orders are not acceptable. Candidates who have already applied in response to Advertisement No. 1736 dated 26.2.86 and Advt. No. 56 dated 10.4.87 for the post of Lecturer Political Science and Advt. No. 1782 dated 2.2.88 for the post of Lecturers Drawing & Painting need not apply again.

Name of Posts	No. of Post	Scale of Pay
1. Reader Political Science	1 TLR	3700-5700
2. Reader Zoology	1 TLR	3700-5700
3. Lecturer Computer Science	1 TLR	2200-4000
4. Lecturer Psychology	1 TLR	2200-4000
5. Lecturer Political Science	1 R & 1 Lv	2200-4000
6. Lecturers Drawing & Painting	2 R	2200-4000

Note:—R, implies; regular TLR-implies-temporary likely to be regular, Lv-implies leave vacancy.

QUALIFICATION

1. FOR THE POST OF READERS
   - (i) Good academic record with a doctorate degree or equivalent published work and active engagement in research or innovation in teaching methods or production of teaching materials; **and**
   - (ii) Five years experience of teaching or research including at least three years as lecturer or in equivalent position.
2. FOR THE POSTS OF LECTURERS
   - (a) A doctorate degree or research work of an equally high standard in relevant subject; and
   - (b) Consistently good academic record with first or high second class master's degree or an equivalent degree of a foreign university in relevant subject.
3. FOR THE POST OF LECTURER IN COMPUTER SCIENCE

   If candidates possessing the qualifications as in Sl. No. 2 above are not available, candidate possessing MASTER'S DEGREE IN COMPUTER SCIENCE with one year relevant professional experience and experience of programming language/operating systems data processing/system analysis/computer net works/micro-processors can also be considered.

Further details regarding qualifications, service terms and permissible relaxations in qualifications will be provided with application form. Preference will be given to SC/ST disabled candidates if otherwise considered suitable by the Selection Committee. Application form will not be sent by post after **10.5.1988** and applications on plain papers and received after due date are not acceptable.

R.C. Pant
REGISTRAR

JAWAHARLAL NEHRU UNIVERSITY
NEW DELHI

Advt. No. A&E-II/2/88

The University has openings for faculty and other positions as indicated in the under-mentioned Schools of Studies/Departments :

I. Physical Sciences

The School has openings at various levels i.e. Professor, Associate Professor and Assistant Professor for **Experimentalists** with degrees in Chemistry or Physics in the areas of: Condensed Matter, Turbulence and Hydrodynamics, Non-linear Optics, Disordered Systems, Semi-and Super-conductors and Molecular Beams. The positions are also available in the Assistant Professorial level for **Theorists** with degrees in Chemistry or Physics in the above mentioned areas.

Essential Qualifications

(1) Professor (Grade Rs. 4500-7300): (a) An eminent scholar with published work of high quality actively engaged in research. About ten years' experience in teaching and/or research. Experience of guiding research at doctoral level. OR (b) An outstanding scholar with established reputation who has made significant contribution to knowledge.

(2) Associate Professor (Grade Rs. 3700 5700) : Good academic record with doctoral degree or equivalent published work. Actively engaged in research or innovation in teaching methods or production of teaching materials. About five years' experience with minimum three years as lecturer or equivalent position.

(3) Assistant Professors (Grade Rs. 2200-4000). Master's degree in the relevant subject with at least 55% marks or its equivalent grade, and good academic record.

II. Environmental Sciences

(4) Professor—E.Q. : as mentioned

at (1) above. D.Q. : (a) doctorate degree in any one of the branches of Chemistry, Analytical Chemistry, Inorganic Chemistry, Soil Chemistry, Surface Science, Corrosion Science, (b) Relevant experience of teaching at the post-graduate level and research guidance.

(5) Associate Professor. E.Q. : as mentioned at (2) above. D.Q./Specialisation in any of the following areas: Surface Processes, Palaeoceanography/Palaeo Climatology, Exploration geophysics/Climatology. Relevant experience of teaching/research at post-graduate level and research guidance.

III. Special Centre for Biotechnology

(6) Professor / Associate Professor/Assistant Professor. E.Q. : as mentioned at (1), (2) and (3) above respectively. D.Q./Area of Specialisation/Biochemistry / Immunology / Microbial Genetics / Biochemical Engineering (Aptitude for teaching is highly desirable).

IV. University Service & Instrumentation Centre

(7) Professor (Grade Rs. 4500-7300). E.Q. (1) (a) A Doctor's degree in a branch of Science or Technology or Engineering or published work of an equally high standard; and (b) Consistently good academic record with first or high second class (B+) Master's degree in a relevant subject or an equivalent degree of a foreign University (Relaxation in any of the qualifications prescribed in (b) could be made provided that the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard). (2) At least ten years' experience of research in a reputed research/instrumentation laboratory. (3) Evidence of published research work and experience of guiding research. Proven ability in designing and building and maintenance of major instruments. (5) Capacity to lead and direct R & D activities. D.Q. Working knowledge of some modern analytical instruments.

V. Languages

(8) Assistant Professor in Portuguese : E.Q. : as mentioned at (3) above. D.Q. M.A. in Romance Language; good command of the Portuguese Language. Preference will be given to candidates having teaching experience in the area concerned.

VI. Human Rights Teaching & Research Programme

(9) Research Associate (Consolidated Salary : for categories A, B, C & D will be Rs. 1400/-; Rs. 1600/-; Rs. 1800/-; and Rs. 2000/- respectively on the recommendations of a Selection Committee). E.Q. (a) Consistently good academic record and a doctoral degree or published work of a high standard in the field of Social Sciences. (b) Research experience and published work in the field of human rights and/or International Organisation and International Law. D.Q. : Specialisation in the field of Human Rights. Job Description : To organise, conduct and guide research in problems relating to human rights with specific reference to Asian Countries.

15% and 7-1/2% of the posts of Assistant Professors are reserved for SC/ST candidates. Age limit for the Post of Research Associate is below 45 years (55 years in the case of SC/ST candidates).

Any of the qualifications/experience may be relaxed at the discretion of the University. It will also be open to the University to consider the names of suitable candidates who may not have applied.

Application forms alongwith necessary details may be obtained free of cost in person or by sending a self-addressed envelope (23 cm x 10 cm) duly stamped, to the Dy. Registrar (Academic & Establishment), Room No. 204-B, Administrative Block, Jawaharlal Nehru University, New Delhi-110067. The applications in the prescribed form complete in all respects duly forwarded by the competent authority (for those in service) should reach this University by **10th May, 1988.**

(Abbreviations—E.Q. Essential Qualifications, D.Q. — Desirable Qualifications).

BIRLA INSTITUTE OF TECHNOLOGY
MESRA : RANCHI

Admission to 3-Semester (1½-Yr.) Post-graduate Programme—1988

Applications are invited for admission to the following 3-Semester (1½-Yr.) Post-graduate courses leading to M.E. and M. Pharm. Degree :

Courses	Specialisations	
M.E. Degree Programme		
(i) Electrical Engineering	1. Control Systems	2. Power Systems
(ii) Electronics & Comm. Engg.	1. Microwave Engg.	2. Instrumentation & Control
(iii) Mechanical Engineering	1. Heat Power	—
(iv) Space Engg. & Rocketry	1. Aerodynamics	2. Rocket Propulsion
M. Pharm. Degree Programme	1. Pharmaceutics	2. Pharmaceutical Chemistry

Eligibility Requirements

1 (i) **For M.E. Electrical, Electronics & Comm. & Mechanical Engineering.**

A Bachelor's Degree in the appropriate branch of Engineering with a minimum of 60% marks in aggregate or Sec. A & B of the A.M.I.E. (India).

For ME Space Engg. and Rocketry

(ii) A Bachelor's Degree in Mechanical or Aeronautical or Chemical Engineering with a minimum of 60% marks in aggregate or Sec. A & B of A.M.I.E. (India) or A.M. Aero. S.I. or A.M.I.Ch.E. or equivalent.

(iii) **For M. Pharm :**

A Bachelor's Degree in Pharmacy with a minimum of 60% marks in aggregate.

(2) Must have qualified at the Graduate Aptitude Test in Engineering (GATE).

Note : SC/ST candidates having a minimum of 55% aggregate marks are eligible.

15% seats are reserved for scheduled caste candidates and 7-1/2% for scheduled tribes candidates. However, to be considered for admission they should have qualified at the GATE.

Students admitted to the above courses will received Ministry of Human Resource Development Training Fellowship @ Rs. 1,000/- per month.

Applicntion forms can be obtained from the Institute Office by sending a Postol Order for Rs. 25/- apayable to the Registrar, Birla Institute of Technology, Mesra, at Mesra Post Office and a self-addressed envelope of size 280 mm × 125 mm having 1.80 stamp. Forms will be issued upto June 20, 1988. The name of the course for which a form is sought must be distinctly mentioned in the letter.

Applications complete in all respect should reach the Registrar, Birla Institute of Technology, P.O. Mesra, Ranchi-835 215, latest by **June 30, 1988.**

J.B. Saksena
REGISTRAR & OSD

UNIVERSITY OF BOMBAY

BOMBAY-400 032

Applications are invited in the prescribed form for the following posts in the University exclusively from the candidates belonging to backward classes viz. SC/ST/DT & NT.

Sr. No.	Designation of the Post	Department/ Centre	No. of Post
1.	Lecturer	Economics	1
2.	Reader	Applied Psychology	1
3.	Lecturer	Applied Psychology	1
4.	Lecturer in German	Foreign Languages	1
5.	Reader	History	1
6.	Lecturer	History	1
7.	Lecturer	Hindi	1
8.	Lecturer	Education	1
9.	Lecturer	Philosophy	1
10.	Lecturer	Centre of East African Studies	1

Candidates belonging to the Scheduled Castes, Scheduled Tribes, Denotified Tribes and Nomadic Tribes so notified for the State of Maharashtra will alone be considered for the above posts.

The Pay-Scale of the posts are as follows :

Reader : Rs. 1200-50-1300-60-1900 ; **Lectnrer :** Rs. 700-40-1100-50-1600. In addition to Pay, Dearness Allowance, House Rent Allowance and Compensatory Local Allowance will be paid according to the University rules. The total emoluments at the minimum of the respective pay-scale at the current rates of allowances are as follows :

Reader : Rs. 3321.75; **Lecturer :** Rs. 2254.00.

A higher starting pay may be given to persons appointed to the post of Reader in special cases. All posts carry the retirement benefits according to the existing rules of the University. **Teachers of the University are permitted to take np outside work according to the University rules.** The appointments to the posts, will be made on probation for a period of two years.

The minimum qualifications prescribed for the posts other than the posts at serial Nos. 4 and 8 are as under :

Reader : Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.

About five years' experience of teaching and/or research provided that at least three of these years were as Lecturer or in an equivalent position. This condition may be relaxed in the case of candidates with outstanding record of teaching/research.

Lecturer : (a) A Doctor's degree or research work of an equally high standard; and

(b) Good academic record with at least second class (C in the seven-point scale) Master's degree in a relevant subject from an Indian University or an equivalent degree from a foreign University.

Having regard to the need for developing interdisciplinary programmes, the degrees in (a) and (b) above may be in relevant subjects.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a candidate possessing a good academic record, (weightage being given to M.Phil. or equivalent degree or research work of quality) may be appointed provided he has done research work for at least two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research of high standard within eight years of his appointment, failing which, he will not be able to earn future increments until he fulfils these requirements.

Lecturer in Foreign Languages (Applicable to post at serial No. 4) :

(a) A Doctor's degree or research work of an equally high standard; and

(b) Good academic record with at least second class (C in the seven-point scale) Master's degree from an Indian University or an equivalent degree from a foreign University.

Having regard to the need for developing inter-disciplinary programmes, the degrees in (a) and (b) above may be in relevant subjects.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a candidate possessing a good academic record may be appointed provided he has done one-year post M.A. Diploma course in the teaching of Foreign Language concerned from a University on the condition that he will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within eight years of his appointment, failing which, he will not be able to earn future increments until he fulfils these requirements.

Lecturer in Education—(Applicable to post at Serial No. 8) :

(a) A Doctor's degree in Education or research work of an equally high standard; and

(b) Good academic record with at least second class (C in the seven-point scale) Master's degree in a relevant subject from an Indian University or an equivalent degree from a Foreign University;

OR

(a) A Doctor's degree in any University discipline or research work of an equally high standard; and

(b) Good academic record with an M.Phil. degree in Education (which may be acquired while in service) from an Indian University or an equivalent degree from a Foreign University.

Having regard to the need for developing inter-disciplinary programmes, one of the degrees in (a) and (b) above may be in relevant subjects, the other being in Education.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a candidate possessing a good academic record (weightage being given to M.Phil. or equivalent degree or research work of quality) may be appointed provided he has done research work for at least two years or has practical experience in research laboratory/organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within eight years of his appointment, failing which, he will not be able to earn future increments until he fulfils these requirements.

The additional qualifications prescribed for the posts are as under :

1. **Lecturer (Economics) :** Specialisation or interest for research work of quality in Urban Economics.

2. **Reader (Applied Psychology) :** Desirable : Specialisation in either Clinical Psychology or Counselling Psychology.

3. **Lecturer (Applied Psychology) :** Essential : Specialisation in any area of Educational or Clinical Psychology including Counselling Psychology, Vocational Guidance, Developmental Psychology, Psychodiagnostics and Psychotherapy.

4. **Lecturer in German :** (Foreign Languages) : Post-graduate Diploma in the teaching of German is desirable.

5. **Reader (History) :** Specialisation/research experience in Medieval Indian History, Social and Economics/West Asia is desirable.

6. **Lecturer (History)** Specialisation in research experience in Chinese History/History of West Asia/Russian History.

7. **Lecturer (Hindi) :** Modern Literature as area of special interest will be preferred.

8. **Lecturer (Educatirn) :** Specialisation in Advanced Statistics, Experimental Psychology or Educational Technology.

9. **Lecturer (Philosophy) :** Specialisation in Phenomenology and Existentialism or symbolic logic.

10. **Lecturer (Centre of East African Studies) :** Preferably with some specialisation in African Studies with reference to any of the Spcial Science disciplines such as Economics, Political Science, History, Sociology, Geography, International Affairs and Area Studies.

Knowledge of Swahili will be an added qualification.

Explanation : (1) For determining "good academic record" the following criteria shall be adopted :

(i) A candidate holding a Ph.D. degree should possess at least a second class Master's degree; or

(ii) A candidate without a Ph.D. degree should possess a high second class Master's degree and second class in the Bachelor's degree; or

(iii) A candidate not possessing a Ph.D. degree but possessing a second class Master's degree should have obtained first class in the Bachelor's degree.

(2) Candidates having secured marks more than the mid-point of the prescribed minimum marks for passing an examination in the second class and the prescribed minimum marks for passing an examination in the first class by a University shall be deemed to have passed that examination in the high second class.

The qualification regarding experience is relaxable at the discretion of the Executive Council on the recommendation of the Selection Committee.

Nine copies of the application in the prescribed form, together with copies of certificates and the prescribed fee, should be sent in an envelope superscribed with "Application for the post of————" so as to reach the Registrar, University of Bombay (Teaching Appointments Unit), Fort, Bombay 400 032, on or before **Tuesday, 17th May, 1988**. Candidates from abroad, Andaman and Nicobar Islands and Lakshadweep may send their applications so as to reach the Registrar on or before **Tuesday, 31st May, 1988. Candidates who are already employed shall send**

their applications through proper channel. Applications received after the last date fixed for the receipt of applications will not be accepted. Incomplete applications and applications on plain paper will not be considered. Canvassing direct or indirect will be a disqualification.

Prescribed forms of application can be had, in person, free of charge from the Teaching Appointments Unit, Registrar's Office (Room No. 134), University of Bombay, Fort, Bombay 400 032. Requests for supply of a set of nine prescribed forms by post should be made sufficiently in advance with a self-addressed stamped (Rs. 3.80) envelope of the size of 27 x 12 cms.

Note : All the above posts are being advertised for the third time. Candidates possessing the minimum qualifications prescribed for the posts may also apply.

G.M. Rajarshi
REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY
BOMBAY
Corrigendum to Advt. No. C-190/87-88

PRINCIPAL SCIENTIFIC OFFICER (RSIC)

Corrigendum to Advt. No. C-190/87-88 for the post of Principal Scientific Officer, RSIC, IIT Bombay published in this paper on 21.3.88. inside cover page No. 2

The sentence "The post is temporary and will be confirmed after successful completion of probation period" be now read as "**The post is permanent and the appointee will be confirmed after satisfactory completion of probation period**".

The last date for receipt of applications will now be the 2nd May 1988, instead of the 15th April 1988.

REGISTRAR

PANJAB UNIVERSITY
CHANDIGARH
CORRIGENDUM

"In the 'Detailed Instructions for the Candidates' as per Advt. No. 2/88, the specialization in Gurmat Poetry for the posts of Lecturers in Panjabi, be treated as deleted so as to enable these posts as open ones. The last date for receipt of such applications has been extended till 29 4 1988.

NORTH-EASTERN HILL UNIVERSITY
SHILLONG
No. F. 1-44/Estt-II/88-812

Dated the 8 April 1988

ADDENDUM

In continuation of this University's advertisement No. F. 1-44/Estt-II/88/211, dated 18th March, 1988, the following additions are made :

Sl. 11. Department of Philosophy (S)
Lecturer—1 :- Open

Sl. 22. School of Agricultural Sciences & Rural Development (M) Nagaland.

(b) Rural Dev. & Planning : Lecturer—1.
(d) Soil Conservation : Lecturer—1.

Sl. 30. Department of Zoology (S)
Reader—1 :- Wild Life Ecology

Sl 31. Department of Physics (S)
Reader—1 :- Solid State Physics.

D.C. Pant
REGISTRAR

TATA INSTITUTE OF SOCIAL SCIENCES
(Institution Deemed to be University)

Post Box No. 8313, Deonar, Bombay 400 088

Admission Announcement for 1988-89

POST M.A. CERTIFICATE PROGRAMME IN RESEARCH METHODOLOGY M.Phil./Ph.D. PROGRAMME IN SOCIAL SCIENCES AND SOCIAL WORK

1. **Certificate Programme in Research Methodology** (One semester full-time in the second semester) after a Master's degree in the Social Sciences/Social Work
2. **M Phil. in Social Work/Social Sciences** (full-time and part-time)
3. Ph.D. in Social Work/Social Sciences (full-time and part-time)

ELIGIBILITY

Certificate Programme in Research Methodology :

Master's degree in the relevant faculty with at least 50% of the marks/grade/point average of 3 under the University Grants Commission 7 point grade system.

M.Phil./Ph D. Programme

Master's degree of the relevant faculty with 55% of the marks/grade points average of 4 under the University Grants Commission 7 point grade system.

RECEIPT OF APPLICATIONS AND COMMENCEMENT OF PROGRAMMES

The applications for the Certificate Programme in Research Methodology are received only in October 1988. The programme commences on December 1, 1988. The application form and prospectus will be available from July, 1988.

The applications for the M.Phil./Ph.D. programme are accepted and the selections made throughout the year.

The programme commences soon after selection.

Applications and prospectus are available on request accompanied by Demand Draft for Rs. 25/-.

Scholarships ; Five Junior Research fellowships are available only for the Ph.D. programme to those who have passed the National Level Test conducted by the University Grants Commission.

N. Krishnamoorthy
REGISTRAR

S.N.D.T. WOMEN'S UNIVERSITY

1, NATHIBAI THACKERSEY ROAD, BOMBAY-400 020

Advertisement No. 10 **Dated : April 15, 1988**

Applications are invited in the prescribed forms available at the University Office between 10-30 a.m. to 2-30 p.m. from Monday to Friday and 10-30 a.m. to 12.00 noon on Saturday, on payment of Rs. 5/- (M.O./Indian Postal Order/in Cash) for the following posts, to be filled in at the University Departments and its conducted Institutions at Bombay, so as to reach the undersigned on or before fifteen days from the date of its advertisements.

Sr. No. Post	Post and Name of the Dept./ Institution	No. of Post	Post under Reserved Category	Medium of Teaching
A	**L.T. COLLEGE OF NURSING, BOMBAY-20**			
*1.	Staff Nurse (under C.A.S.)	SEVEN	ONE (3rd time adv.)	—
*2.	Lecturer in Nursing	TWO + One Temp.	ONE (2nd time adv.)	ENG
*3.	Ward Sister (under C.A.S.)	ONE	ONE (2nd time adv.)	ENG
4.	Sister Tutor (under C.A.S.)	ONE	—	ENG
B.	**P.V. POLYTECHNIC, BOMBAY-49**			
	Teaching Post			
1.	Head of the Dress Making & Fashion Co-ordination Dept.	ONE	—	ENG
2.	Head of the Interior Design Dept.	ONE	—	ENG
3.	Head of the Ophthalmic Technology Dept.	ONE	—	ENG
*4.	Lecturer in Electronics	EIGHT	TWO	ENG
*5.	Lecturer in Ophthalmology	TWO	ONE	ENG
6.	Lecturer in Physics	ONE	—	ENG
7.	Lecturer in English	TWO	—	ENG
*8.	Lecturer in Interior Design	EIGHT	TWO	ENG
9.	Lecturer in Textile Design	ONE	—	ENG
10.	Lecturer in Food Technology	TWO	—	ENG
11,	Lecturer/Instructor in Drafting, Cutting & Sewing	ONE	—	ENG
12.	Lecturer in Anatomy Psychology	ONE	—	ENG
*13.	Instructor in Optometry	TWO	ONE	ENG
	Non-Teaching Post			
14.	Head of the Resource Centre	ONE	—	—
15.	Commercial Artist (under Resource Centre)	ONE	—	—
16.	Registrar	ONE	—	—
17.	Librarian	ONE	—	—
18.	Assistant Librarian	ONE	—	—
19.	Electrical Instrument Mechanic, under Resource Centre	ONE	—	—
20.	Electrician	ONE	—	—
21.	Laboratory Assistant	ONE	—	—
*22.	Laboratory Assistant-cum-Storekeeper	THREE	ONE	—
23.	Technical Assistant for Ophthalmic Technology Dept.	ONE	—	—
*24.	Technical Assistant for Electronics Dept.	ONE	ONE	—
*25.	Watchman	THREE	THREE	—
C	**DEPT. OF POST GRADUATE STUDIES & RESEARCH, BOMBAY-20**			
	Under P.G. Dept. of Music Development of Performing Arts & Visual Arts—Upto March 1992			
1.	Lab Assistant	ONE TMP TENURE		
2.	Tabla Accompanist	TWO TMP TENURE		
	Under P.G. Dept. of Politics			
3.	Lecturer in Politics	ONE TMP		

Minimum qualifications, salary scales, etc. of the teachers are as per approved UGC scales and qualifications. Applications of Scheduled Castes/Scheduled Tribes/Nomadic Tribes/DNT, will be considered as per Government Directives. *indicates post under reserved category and will be filled by SC/ST/NT/DNT candidates only. Incomplete applications & applications on a plain paper will not be considered.

REGISTRAR

NATIONAL INSTITUTE OF EDUCATIONAL PLANNING AND ADMINISTRATION

17-B, Sri Aurobindo Marg
New Delhi-110016

Applications are invited for the following posts :

1. Senior Fellow (3 posts) :
(Rs. 4500-150-5700-200-7300)

Higher Education	—1
School Education	—1
Educational Finance	—1

(a) Qualifications

Essential

(i) Should have consistently good academic record with first or High second class (B+) Master's degree in Education, Social Sciences or disciplines allied to Educational Planning and Administration of an Indian University or equivalent degree of a foreign university.

(ii) **Either** a doctorate degree of an Indian or foreign university or published research work of a high standard or outstanding academic contribution in Higher Education for the first post, School Education for second post and in Educational Finance for third post.

(iii) At least 10 years' experience of teaching/conducting and/or guiding research in relevant areas.

OR

At least 10 years' administrative/professional experience at Senior level in government or autonomous body in relevant areas.

(b) Age : Preferably below 50 years.

2. Fellow (2 posts) :
(Rs. 3700-5700)

Comparative Education (upto 15.2.1990 in the first instance)	—1
School Education	—1

(a) **Qualifications**

Essential

(i) Should have consistently good academic record with first or high second class (B+) Master's degree in Education, Social Sciences, or disciplines allied to Educational Planning and Administration of an Indian University or an equivalent degree of foreign university;

(ii) **Either** a doctorate degree of an Indian or foreign university or published research work of a high standard or outstanding academic contribution in Comparative Education with an International perspective for the first post and School Education for the second post; and

(iii) Atleast 5 years' experience of teaching/conducting and/or guiding research in relevant areas.

OR

At least 5 years' administrative/ professional experience in relevant areas.

(iv) Proven merit in writing/ editing/ documenting professional work.

Desirable

Rich educational background in the area of educational administration and planning.

(b) Age : Below 45 years.

Note : **For the posts of Senior Fellows and Fellows at Sl. No. 1 and 2, the condition regarding Ph.D. will not apply in case of persons drawn from administrative cadres but there should be evidence of academic and innovative contribution in the field of Educational Planning and Administration. It will be open to persons serving in government departments to join the post on usual deputation terms.**

All the posts carry the usual allowances as are admissible under the Central Government rules. Applications **clearly specifying the post alongwith discipline**, with full bio-data particulars alongwith attested copies of certificates, a recent passport size photograph and a non-refundable crossed postal order of Rs. 8/- (no postal order is required in the case of Scheduled Castes/Scheduled Tribes candidates) drawn in favour of Registrar, NIEPA, 17-B, Sri Aurobindo Marg, New Delhi-110016, should reach the undersigned latest by **20.5.1988. Separate application be made for each post.**

Qualifications and age are relaxable for otherwise well qualified candidates. Candidates from outside Delhi called for interview will be paid single return train second class fare by shortest route. Candidates already in employment in Government/Semi - Government Departments/Autonomous bodies should send their applications through proper channel.

Other things being equal, preference will be given to Scheduled Caste/Scheduled Tribe candidates.

R.P. Saxena
REGISTRAR

ANNAMALAI UNIVERSITY
RAJAH MUTHIAH MEDICAL COLLEGE
ANNAMALAINAGAR

Notification No. 1 (S)/88 **Dated : 12.4.1988**

Applications are invited in the prescribed form for the following posts in the Rajah Muthiah Medical College of this University :

Sl. No.	Name of the Post		No. of Post
1.	Professor of Pathology	—	1
2.	Professor of Physiology	—	1
3.	Professor of Medicine	—	1
4.	Professor of Surgery	—	1
5.	Professor of Obstertrics and Gynaecology	—	2
6,	Professor of T.B. and Chest Diseases	—	1
7.	Professor of Orthopaedics	—	1
8.	Professor of Anaesthesiology	—	1
9.	Professor of Psychiatry	—	1
10.	Reader in Pharmacology	—	2
11.	Reader in Pathology	—	3
12.	Reader in Microbiology	—	1
13.	Reader in Forensic Medicine	—	1
14.	Reader in Radiology	—	1
15.	Reader in Anaesthesiology	—	1
16.	Reader in Social and Preventive Medicine	—	2
17.	Lecturer in Physiology	—	1
18.	Lecturer in Bio-Chemistry	—	1
19.	Lecturer in Pharmacology	—	1
20.	Lecturer in Pathology	—	3
21.	Lecturer in Anatomy	—	1
22.	Lecturer in Forensic Medicine	—	1
23.	Lecturer in Social and Preventive Medicine	—	1
24.	Lecturer in Rural Health Centre	—	1
25,	Lecturer in Urban Health Centre	—	1
26.	Lecturer-cum-Epidemiologist	—	1
27.	Lecturer in Medicine	—	3
28.	Lecturer in Obstetrics and Gynaecology	—	2
29,	Lecturer in Dermatology	—	1
30,	Lecturer in Radiology	—	1
31.	Lecturer in Casuality Medical Unit	—	2
32.	Medical Officer-cum-Lecturer in Blood Bank	—	1
33.	Lecturer in Orthopaedics	—	1
34.	Antenatal Medical Officer-cum-Lecturer	—	1
35.	Maternity and Child Welfare Officer-cum Lecturer		1
36.	Tutors	—	25
37.	Store Medical Officer (Tutor Grade)	—	1
38.	Out-patient Medical Officer (Tutor Grade)	—	2
39.	Blood Bank Medical Officer (Tutor Grade)	—	1
40.	Clinical Pathologist (Lecturer Grade)	—	2

QUALIFICATIONS

Professor: Applicant should have 4 years of teaching experience as Reader in a Medical College, besides the prescribed educational Qualification.

Reader: Applicant should have 5 years of teaching experience as Lecturer in a Medical College besides the prescribed educational qualification.

EDUCATIONAL QUALIFICATION

For Sl. No. 1 : M.D. (Pathology)/M.D. (Pathology & Bacteriology)/ M.D. (Pathology with Bacteriology) / Ph.D. (Pathology)/D.Sc. (Pathology)

For Sl. No. 2 : M.D. (Physiology)/ M.B.B.S with M.Sc. (Physiology)/Ph.D. (Medical Physiology) / D.Sc. (Medical Physiology)

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University News

MONDAY, MAY 2, 1988

Rs. 1.50

C. K. Y. R. L.

FIRST CONVOCATION
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First Convocation of the Thapar Institute of Engineering & Technology (TIET), Patiala. From Left to Right : Dr. N.C. Nigam, Director, Mr. L.M. Thapar, President, Dr. Raja Ramanna, Chairman, Governing Council, IISc, Bangalore and Mr. I.P. Anand, Chairman, Board of Governors, TIET.

United States Educational Foundation in India

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Applications are invited for the following scholarships/fellowships for the 1988-89 academic year :

1. U.S. Government post-doctoral fellowships for independent research (duration 4-6 months). Scholars permanently employed in colleges, universities and research institutions, with Ph.D. or equivalent published work, below 45 years of age are eligible for fellowships. Available fields : American Studies, Educational Technology, Economics (Economics of Education, Economics of Health), Public Law, Public Administration, Public Policy, Sociology relating to Development, Women's Studies, Environmental Sciences, Information Technology and Communication.

Last Date : July 15, 1988

2. Readers and Professors and faculty of equivalent rank in research institutions, below the age of 55 years and permanently employed, with Ph.D. or equivalent published work, may apply for short-term (3 months) fellowships. Fields : (i) American Studies, (ii) Educational Management (Vocational Education, Curriculum Development, Economics of Education), and (iii) Educational Testing and Psychological Measurement.

Last Date : July 15, 1988

3. Hubert H. Humphrey Fellowships for academic study and practical training for nine months, for managers and administrators at decision making levels in the fields of Agriculture, Planning, Resource Management, Public Health and Public Administration, preferably first class both at bachelors and masters level with a minimum of five years professional experience. Age below 35.

Last Date : June 15, 1988

4. U.S Government post-doctoral Travel-Only grants—beginning **September '88 or later** for those who (i) have a teaching/research appointment in a U.S. university for a minimum period of three months or (ii) have faculty assignments under inter-institutional collaboration for a visit of 1-3 months or (iii) have invitation for a professional visit of 2-3 months with assured financial support.

Last Date : May 15, 1988

5. East-West Centre, Hawaii, pre-doctoral scholarships. Permanently employed persons (preferably below 35), with two years of experience in the field of specialization with 55% marks in B.A. and 60% in M.A. are eligible. Available fields : Agricultural and Resource Economics; Agronomy and Soil Science; American Studies; Anthropology; Biostatistics/Epidemiology; Botanical Sciences; Business Administration; Chemistry; Communication and Information Sciences; Drama and Theatre; Economics; Educational Psychology; Electrical Engineering; Entomology; Geography; Geology and Geophysics; History; Horticulture; Linguistics; Mechanical Engineering; Meteorology; Microbiology; Ocean Engineering; Oceanography; Philosophy; Political Science; Psychology; Public Health; Sociology; Zoology.

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6. Internships in Communication Technology for a non-degree program up to six months. Persons employed in Television (software and production) and other media practitioners below 40 years of age are eligible.

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Editor :
SUTINDER SINGH

– MAY 1988
C. F. T. R. I., MY

Basic Sciences in Agricultural Universities

R. C. Paul*

Agricultural practices have become vastly complex over the last few decades. This becomes obvious even to a casual observer watching agricultural operations of today and comparing them with those prevaletn before independence. The use of improved seeds, adequate dosages of fertilizers, pesticides, insecticides, fungicides and weedicides besides an assured supply of water, use of harvesting machinery etc., are features of present day agriculture, absent in the traditional agriculture of the past. This revolution in agriculture has necessitated a critical look at the education of agricultural scientists.

Agricultural universities were started about three decades ago. Their curriculum initially included instruction in the traditional agriculture, i.e. agronomy, plant breeding, soil science and farm economics etc. Little emphasis was placed on basic sciences and either these subjects were omitted from the undergraduate curriculum or were given only peripheral consideration. Consequently in the beginning the faculty of agricultural universities was recruited primarily from men of agriculture and there were very few scientists belonging to basic sciences. At the undergraduate level, only B.Sc. (Agriculture) degree was awarded. Where specialisation was permitted, it was largely restricted to agricultural subjects e.g. B. Sc. (Agriculture) (Plant Breeding etc.). A limited number of courses in basic science subjects were allowed as an elective in the final year of undergraduation to enable a student to pursue higher degree courses at M.Sc. level. For example, a student with Biochemistry as an elective subject could enrol for M.Sc. (Agricultural Biochemistry).

No student with a pure science background could register for this or any other course. Thus an agricultural university consisted of an academically closed society. With passage of time, things began to change. The separation of school of basic sciences from the college of agriculture, the appointment of an independent Dean (college of basic sciences) led to the recruitment of faculty, opening up of new departments or the separation of basic science components from the existing agricultural departments (e.g. from the department of Botany—Plant Pathology was separated and Botany department became an independent department in basic sciences college), and the initiation of new and independent programmes of instruction leading to M. Sc. & Ph. D. degrees. Concurrently pure science graduates were allowed admission in agricultural universities. Thus the doors of agricultural universities were thrown open to non-agriculture students. This led to great enrichment of the university culture and great benefit accrued alike to students of agriculture and of basic sciences. This development however was restricted to only a few agricultural universities, and majority of agricultural universities are still struggling to establish a meaningful set up of basic sciences.

Independent College of Basic Sciences

There are several reasons why there should be strong independent schools/colleges of basic sciences in agricultural universities ?

Former Vice-Chancellor, Panjab University and President, Association of Indian Universities.

(1) Agriculture has become complex and agriculture graduates without adequate background in basic sciences cannot grasp the intricacies of their subject matter. For example, no plant breeder can be productive unless he can make effective use of techniques of molecular biology, i.e. unless he has an effective knowledge of biochemistry, microbiology and genetics. The technique of transferring genes by biotechnology should be taught to all plant breeders.

A soil scientist working in the area of soil organic matter should be thoroughly conversant with structural and modern organic chemistry. He should have an ideal of the tools currently being used by organic chemists e.g. NMR, IR, Mass, UV & Visible spectra, etc.

(2) Many of the agricultural universities are located in areas where there are no traditional universities. There, these universities could discharge a great social service to the area by offering courses in basic sciences.

(3) As agriculture advances the number of persons (including agricultural scientists) actually engaged in farm operations declines, while those indirectly engaged in agricultural sector like engineers in farm machinery, organic chemists in industry manufacturing insecticides, pesticides, etc. geneticists engaged in gene manipulation, microbiologists in fermentation technology based upon agriculture, etc. are required in larger numbers. This should reflect in the increasing emphasis which should be laid on the teaching and research in these ancilliary disciplines.

Among the Agricultural Universities only a few have a fullfledged basic science college under the overall administration of the Dean of the College. These include PAU, Ludhiana; HAU, Hisar; G.B. Pant University of Agriculture & Technology, Pantnagar; Rajendra Agricultural University, Bihar; and Orissa University of Agriculture & Technology, Bhubaneshwar.

In many of the colleges, however, there are departments of basic sciences either under a single head as in Palampur (H.P.) or there is a faculty of basic sciences as in J.N.K.V.V., Jabalpur (M.P.). In many other universities the basic science subjects are administered by Dean, College of Agriculture and occasionally some subjects are looked after by Dean, College of Veterinary Sciences.

In the case of the three major universities—HAU, Hisar; PAU, Ludhiana; and G.B. Pant University of Agriculture & Technology, Pantnagar; the basic science colleges are well developed and have been offering Postgraduate Courses leading to M.Sc. & Ph. D. in many basic science subjects such as Biochemistry, Microbiology, Genetics etc. I feel the safest way to get guidance in this matter is to look into the history of development of the land grant colleges of the United States after which our agricultural universities have been patterned. Till 1862 every state received federal land to support a college of agriculture and mechanical arts (A.M.). The immediate result was to establish more than three dozen small teaching and research centres. Most of the A.M. colleges have today become fullfledged state universities and have changed their names to reflect this fact. In most respects the majority of A. M. colleges have become pragmatically indistinguishable from public Universities. Michigan, Cornell, Ohio State, and Wisconsin Universities which started as agricultural colleges are big universities today and have excellent departments of chemistry and biochemistry and other basic sciences. A university for its proper growth has to be a multi-faculty university. Even IITs which were essentially meant to produce engineers have very strong departments of basic sciences, as it has been realised that without proper knowledge of basic sciences, applied sciences cannot be easily mastered and research in these areas (applied) is very difficult without the sound knowledge of basic sciences. In future, agricultural scientists will need strong inputs of instrumentation, electronics, statistics or computer science and will need senior staff members in these fields to interact with and therefore, there should be facilities for teaching and research in these fields along with other basic sciences on the agricultural university campuses.

It should therefore be obvious that the ultimate fate of agricultural universities is to become fullfledged multifaculty universities. While the transformation from A.M. colleges to state universities in U.S.A. took considerable time, considering the fast pace of events today and the current day needs of varied education of the society, this transformation should be effected speedily. Already the older and better known agricultural universities like G.B. Pant University of Agriculture & Technology, Haryana Agricultural University (HAU) & Punjab Agricultural University (PAU) are multi-faculty and have independent colleges of basic sciences. But these are only a few universities. Position in most of them is exemplified by Gujarat Agricultural University which has four campuses but there is no college of basic sciences on any of them.

One of the major advantages of having an independent college of basic sciences is that it permits recruitment of competent faculties. No good scientist in basic sciences would care to serve in college of agriculture where he cannot professionally grow because he will not have adequate number of professional colleagues to discuss his problems with, nor independent programmes of instruction and no opportunity to engage in Master or Ph. D. programme in his subject. Where such a provision exists, invariably better faculty has been attracted and the basic science departments have given good account of themselves.

The PAU Example

In this connection I would like to dilate upon PAU and its basic science departments. The basic science departments of Botany, Zoology, Biochemistry, Chemistry and Physics have been doing excellent research in their respective fields which are very much oriented to the needs of agriculture which is of advantage to agriculture and their own subject. Today the work done by their professors is of such a high level that their Professors of Botany (Prof. C.P. Malik), Zoology (Prof. S.S. Guraya) and Biochemistry (Prof. I.S. Bhatia) have been elected fellows of the Indian National Science Academy. There are a few other scientists who have also been honoured in this way but the main reason of bringing this fact on record is to indicate that the border areas between pure sciences or basic sciences and agricultural sciences are the areas which need far greater attention today than ever before.

Basic science departments such as Chemistry, Physics, Biochemistry, Genetics, Microbiology, Botany, Zoology, Mathematics and Statistics should have graduate programmes leading to M. Sc., and Ph. D. In some of the agricultural universities this is already the case at least in a number of subjects. For example, at PAU Master and Ph. D. degrees are awarded in Chemistry, Biochemistry, Microbiology, Botany, Zoology, Statistics and Genetics in addition to some of the subjects which fall under social sciences and humanities e.g. Economics, Sociology and Business Management etc. The situation is not very different at HAU, Hisar. The G.B. Pant University of Agriculture & Technology at Pantnagar also has postgraduate programmes in basic science subjects.

The situation is a little different now so far as under graduate programmes are concerned at the PAU. Undergraduate programmes were started in 1970 in Chemistry, Biochemistry, Zoology, Botany and Statistics. But for some reason these programmes were closed down in 1985.

Integrated Courses

It is felt that an agricultural university is in a unique position to offer well balanced integrated courses in biological subjects. The vast facilities of well defined materials of research like seeds, crops, and laboratory animals such as sheep, goat and Buffaloes, milk, eggs, fruits etc., the varied faculty in well developed disciplines like Genetics, Veterinary Science, Bacteriology, Immunology, Plant and Crop Physiology, Soil Science, Plant Biochemistry, Animal Nutrition, Food Technology, Animal Sciences, Energy etc., and good interaction resulting from the system of education—there is enormous flexibility in the courses a student could take to get his degree under the trimester system of education, excellent budgetary support for research—research is given much more importance than teaching in agricultural universities are some of the factors which make agricultural universities ideally suitable for teaching and research in biological subjects. It is beyond the capacity of an ordinary traditional university to conduct teaching and research in subjects such as Biochemistry, Microbiology, Genetics and Reproductive and Cell Biology, etc. It is suggested that a three to four year integrated course or undergraduate programme involving chemistary, biochemistry, microbiology, genetics, physics, mathematics, statistics and humanities should be started in all such agricultural universities where adequate facilities exist for running such a course. In other universities, colleges/schools of basic sciences should be started and this will help research in agriculture subjects.

Interaction between Agricultural and Traditional Universities

There should be a close collaboration between these universities involving exchange of faculty, joint offering of courses and joint registration of students for research. Informally, this is already there, but this is only a trickle and the process needs to be accelerated. In this age of specialization, it is but natural that no university can have all the expertise needed for proper functioning of its academic programmes and, therefore, pooling of resources may become an absolute necessity. Arrangements should be institutionalized so that collaboration can be made effective.

Teachers could go to other universities and offer a course for a semester and be treated as a university guest. Students could do a part of their research in another university and be given facility in the hostel or the guest house. Joint research programmes between two universities could be undertaken.

In fact there are already some collaborative research programmes between the Indian Institute of Science and the Bangalore University of Agricultural Sciences in the area of Plant Biochemistry and Plant Physiology.

The exact institutional arrangement is a matter of detail and could vary according to the local situation. It will be desirable to have a committee of the Vice-Chancellors including those of Agricultural Universities which could meet periodically and sort out matters of mutual interest.

Biotechnology which is going to play an important role during the next few decades can best be developed on the campuses of agricultural universities. To support this technology, it is recommended that integrated courses of instruction including Chemistry, Biochemistry, Genetics and Microbiology be started at the undergraduate level in all the agricultural universities. It is only in these universities, with the flexibility of approach in instruction and with their vast resources, that a breed of biologists can be trained who will be indispensable for managing Biotechnology.

Agricultural Education for General Students

Agriculture as a subject should form a part of our general education. Since 75-80% of our population is living in rural areas, introduction of agriculture or agriculture related subjects will bring awareness amongst our youngmen and women and be of a great advantage to the country as it is the most important source of income in this country, much more important than even industry.

Introduction of agriculture at B. Sc. level in colleges under traditional universities will not mean specialised training or an advanced course in agriculture, making the student fit for a job in agricultural universities or research institutes or in state and central governments but it will only impart an awareness about it. If agronomy can be taught or allowed to be taken as a subject at +2 level in West Bengal and sericulture with Chemistry and Botany or Zoology at B Sc. level or electronics with Physics and Mathematics at Bangalore, I see no harm if agriculture is also allowed to be introduced at B. Sc. level. It is worth mentioning that we are promoting physical education and have already allowed it as one subject at graduate level. The course for such an elective subject at B.Sc. level may include knowledge about a general awareness of agriculture related matters including the use of seeds, fertilizers, pest control, ground water and irrigation, and rabi and kharif crops.

A little knowledge about Farmer's organisations, banking and farm insurance, marketing, distribution and storage of farm produce etc. will also be very useful. Such awareness amongst the youth of the country will go a long way to improve agriculture and the farmers' lot.

Higher Education in Agriculture

There are 26 state agricultural universities (SAUs) in the country that are conducting teaching, research and some extension services in an integrated manner. They look after the area assigned to them by the state government. They are created by an act of state legislature and are supported mainly by the state. They enjoy great deal of autonomy. They are governed by their respective Boards of Management which have a number of state government representatives on them. Of course, the Chairman of the Board is the Vice-Chancellor of the University and the Governor of the state is its Chancellor. They offer degree courses in many broad areas covering agriculture and allied fields. These universities also offer postgraduate degree programmes (Master & Doctoral) in a large number of disciplines. Students after +2 or 12th grade in science can join bachelors level degree programme. Bachelor's degree programme is of 4 years duration except Home Science which is of 3 years and veterinary science which is of five years duration.

Apart from the agricultural universities, there are other institutions which are imparting education in agriculture and awarding degrees. At present there are eleven state level general universities which continue to have agricultural faculties and there are 34 colleges of agriculture under these faculties. They impart degrees in agriculture at all levels with the difference that while the agricultural universities follow a semester of trimester system these follow the old annual system of examinations. As they have no area assigned to them in their state and no extension programme responsibility, financial support is much below the level of SAUs, and therefore, their teaching and research programmes are much below the level of SAUs. Their teaching programmes are also weak as the bachelor's programme is only that of three years and master's and Ph D. programme is 2 and 3 years duration.

(*Contd. on page 7*)

Genesis of Student Alienation

R. R. Sharma*

Alienation as a psycho-social phenomenon is growing among students at almost all levels of education. But at the stage of higher education its emergence, growth and intensity are of serious concern not only for social scientists but also for college and university authorities; and all are engaged in trying to seek its probable causative factors. The well known social scientists Durkheim (1964) and Merton (1938) are of the opinion that alienation is the result of social condition at a particular stage of time. In their view, it is purely a social phenomenon. But some observers have hypothesised that alienation is the cause of both psychological as well as social factors. Whatever may be the explanations of psychologists and social scientists regarding the emergence of alienation, it is absolutely clear that the reflections of alienation among college and university students are the result of inadequacy, ambiguity and ineffectiveness of these institutions. It is strange that the authorities, instead of looking into the real sources and roots of alienation in the institutional framework, vainly, exert in the darkness. Here an attempt has been made to pinpoint certain changes that have occurred recently in the educational scene and generated the phenomenon of alienation among the students at the higher education level.

(a) Change in Education as a Discipline

It needs no saying that education—a product of knowledge industry, has undergone a tremendous change. The ancient and outmoded aims, like knowledge sake, education for self-realization or education for self-development, have lost currency. Today, knowledge is acquired and education is pursued not to achieve ultimate aims but immediate objectives. A large survey undertaken by Hunt (1952) has revealed in very clear terms the apathy and ignorance of a large majority of students about the ultimate aims of education. Similar results have been reached in the studies of Coomb (1980), Rozer (1981), and Mitchel (1982). Thus, this new wave has made people aware about the immediate gains of education. Students want to see the direct cause-effect relationship between the level of education and the level of their achievement. But when in actual operation such a relationship is absent, they are prone to be frustrated. That frustration creates an indifference in them not only for education but for all processes, agencies and services related to education. Such indifference impinges upon their aspirations in such a fashion that indifference is combined with personal hatred—institutional estrangement, and when this particular process sets in, the disregard for norms, respect and urgency for institutional goals are normal consequences which envelop students in a very slow manner. Thus, it can be said that as long as the relationships of knowledge to achievement and achievement to attainment of social position are ambiguous alienation is bound to be a permanent feature of our educational system.

(b) Confusing Social Demands of Educational Institutions

With the lapse of time the cardinal institution like education has undergone a tremendous change. It is going to be a centre of social, economic, cultural, physical and political activities, for the modern world is knowledge-oriented. So, right from dietary knowledge to the launching of satellites, the school is supposed to take up the responsibility even after one has entered active life. The educational institution is supposed to guide the personnel continuously. Thus, school has acquired a tremendous responsibility which it fails to fulfil due to inadequate physical and human resources. A new student, when enters into this mighty world of activities, fails to adjust himself properly. He cannot keep pace with the swiftly changing programme and gets confused when the institution is disrupted by anti-social activities. He finds himself in a conflicting situation. The institution demands obedience and submission from him, while the student-culture demands protest and aggression from him. Similarly, he has been told that if he pursues the studies properly, he will be rewarded with good achievement. But he finds that rewards are awarded to those who hinder the educational process. He is asked to be an upright citizens, but when he expresses his grievances in an upright and straight manner, he is denounced and punished by the authority. He is put in a typical confusing situation wherein he is supposed to fulfil the demands of becoming a bright student, a cultured social member, a politically aware citizen and physically strong, well-built person; whereas in actual practice, there are meagre resources to fulfil these demands. This multiplicity of demands creates such

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a stress and confusion in his personality that he relapses in helplessness. He feels as if he is drained of all the physical, moral and social power. The consequences force him to become alienated. So, the demands upon educational institution need to be streamlined in such a fashion that these contribute to generating a healthy personality rather than an alienated one.

(c) Over-crowding of Institutions

The social scientists, who have worked in large mass organizations, have come to this conclusion invariably that a growing institution, when expands in its numerical volume, gradually loses its face to face primary relationships due to which the warmth, the affection and the concern at personal level diminish in such a manner that ultimately coflicts, tensions and competitiveness take place. But in this situation only groups can survive. Individual and individuality lose identity and significance. When an individual loses his individuality in an organization, where he expects it to enhance and develop it, he is bound to get frustrated. He is bewildered by the multiplicity of relationships. He is intrigued by multi-dimensional interactional matrixes. He feels himself lost, and the sense of self-loss is bound to create a feeling of alienation in him. Ikner and Roza (1977) studied large number of educational institutions of varying sizes and found that the cases of self-loss were more in number and intensity in comparatively larger institutions. Keeping in view these observations, this can safely be assumed that institutions of education are getting crowded day by day. The clientele is highly heterogeneous from the point of view of culture, economic background, social connection, academic achievement and psychological make-up. In such institutions, although actual competitiveness is unidentifiable, yet the veiled and concealed competitiveness creates the atmosphere of acute anxiety and stress for the students. So alienation directly emanates from the numerical character of overcrowding of institutions. It is very interesting that such overcrowding not only creates a psychological alienation, but because of the paucity of material facilities, resources and services, it creates institutional alienation also. Bore (1982) was perhaps correct when he observed that inadequate environmental supply and highly intensified personal demands create a vacuum in the personal world of the subject and generate a sense of deprivation in him.

(d) Fluctuating Administrative Styles

It is usually observed that administration at the level of higher education institutions is exigency-oriented and fluctuates from time to time due to iternal and external pressures. These pressures are normally individual or group-oriented. So the decisions are neither broad-based nor impersonal and impartial in nature. The growing politicization has put administrators and authorities under great suspense and stress. In general, the administrator tries to escape the responsibility, shifts it to his subordinate and tries to act as a spectator. Consequently, the major and most significant decisions in the universities and colleges remain unexecuted or half-executed. In such a situation a student has no choice but to get things done with the help of aggression or get alienated. It is aptly remarked by Eckorn (1980) that a disrupted institution exhibits its internal chaos and looseness in administration.

Secondly, the channels of communication are not clearly defined because of the multiplicity of roles of one administrative agent in many affairs. The responsibilities have multiplied and grown in case of even teachers that they can fulfil them by ignoring their primary responsibility of teaching and research. Recently, a new trend of subordination of teaching and research to bureaucratic machinery of higher education has generated conflicts and stresses amongst the teachers. They transfer these things to the students.

In such situations, there are very few students who can cope up with the realities of administration. Majority of them either build up a castle of loneliness around them or become catalysts. Gore (1979) was correct when he remarked that despite all mismanagement, our campuses survive because of inherent conditioning of our students to our cultural fatalism. As a matter of fact, the fatalistic tendencies should be included within the form of alienation. In short, the fluctuating administrative style, growing group rivalries, heightened politicization and confusing communication channels in cumulative manner, accelerate the tendencies of activism and alienation amongst the students.

(e) Loss of Significance of Education in Job Market

The uselessness of education or quality of education alone in getting a reasonable job has been so much propagated that it has started generally demotivating effect upon the learning activity of the student. Although he is admitted to a course, yet he fails to recognize its significance. So, he cannot put his honest and sincere labour to it. Moreover, the results of examinations have lost all popular faith. Ultimately, when a student finds that his degree does not testify his amount of labour in academic setting and is not a definite passport to any job, he grows desperate, and unfortunately, under this desperate mental state he has to pursue his studies. But this psychological state cannot be dragged to a long span, and so, he either joins activists' camp or gets alienated.

From the above account, it can be safely concluded that student alienation, in its present form and function, is the by-product of the academic and organizational weaknesses of our educational institutions. ☐

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Basic Sciences in Agricultural Universities

(Continued from Page 4)

Three central universities also have colleges of agriculture and offer bachelor, master and doctoral degrees. They also have no area responsibilities. They are supported by the central university but do not have the same financial support as the SAUs.

The large number of colleges of agriculture affiliated to general universities and three central universities are turning out quite a large number of agriculture graduates. However, because of lack of facilities due to paucity of funds, the very old syllabi and weaker faculty, the graduates coming out of these institutions have much lower level of education. One is not sure of their numbers but it may be about 30% of the total agriculture graduates produced in the country. This shortcoming has to be remedied and must be taken note of by the management of these colleges and the general universities to which they are affiliated. An offer from the SAUs to affiliate them and a directive from the state government may help the managements of these colleges and universities to realize the problem that they are creating by turning out graduates of a lower level. The state governments could offer small areas for extention work as their responsibilities and appropriate funds may also be allocated. SAUs could offer them affiliation and much a better syllabus, which the university itself is following and also academic help to the teachers for starting of the SAU syllabus in these institutions. Of course, the SAUs may have to help the teachers of these colleges in updating their knowledge in special fields.

The other alternative is to help the general universities with special grants for upgrading these colleges with equipment, etc. Of course, even if these colleges do not join the mainstream of agricultural education, the general universities be asked to follow the same syllabi as are followed by the agricultural universities (4 years) in the area and the the Indian Council of Agricultural Research (ICAR) may help them with grants under these special circumstances.

Apart from these we have some central All India Institutes. Two of them have the "Deemed to be a University" status Indian Agricultural Research Institute (IARI), Delhi and Indian Veterinary Research Institute (IVRI), Izatnagar. National Dairy Research Institute (NDRI), Karnal is also likely to acquire this status pretty soon. They are doing ressarch of very high level and are also running regular courses under M. Sc. and Ph. D. programmes. Since these All India institutes "Deemed to be Universities", and some other central research institutes under ICAR are very well equipped and are doing research of a very high level in the fast developing new fields also, they should help the SAUs by running summer schools, seminars, etc. for the staff members of colleges and SAUs regularly. ☐

A Strange New Attitude

Dr. Raja Ramanna, Chairman, Governing Council, Indian Institute of Science, Bangalore, deprecated the new strange attitude of not taking interest in one's work and allowing time to pass without anything being done regarded as an achievement. Dr. Ramanna was delivering the Convocation Address at the First Convocation of the Thapar Institute of Engineering and Technology (Deemed University), Patiala. There was no substitute to quality technology and its being shared with others, he said. Excerpts.

It often happens that to become a respected and great engineer, more than in any other profession, one has to struggle harder. The struggle is a difficult one, involving much competition and responsibilities, both financial and otherwise It is, however, good to believe in the old saying that harder the struggle, the more satisfying the achievement, and more permanent one's place in the profession. It is also at the early stages of one's life that one can learn to face the facts of life that all people are not gifted equally to achieve great things, and good, routine work has to be done and it is just as important. What one has to learn is how not to become a complacent or frustrated engineer, complaining about how badly life has treated one and finally become a menace to society by taking revenge on those around one or trying to rise high by sycophancy and other questionable methods.

To be a truly and intellectually successful technologist and not merely be able to make money quickly, as seems to be order of the day, it is necessary to understand and appreciate one's own country. India is a complex country where greatness coexists with deep shortcomings. An understanding of the former gives one the feeling of confidence and of the latter demands ways and means by which one can contribute to the country by trying to eliminate them. But to understand one's country, in order to build on it, it is necessary to understand it from one's own experience and not through that of others. The tendency is to see India through a foreign projection and such an approach gives a false sense of aims and achievements. We have many faults and we can not wish them away. At best, we can learn to understand why these weaknesses have come about and thus find remedies to eliminate them through knowledge. An obvious and unpleasant example is the practice of dowry, a practice which, in my view, is no different from sati or its glorification. Science and technology should be able to tell you that it is not only cruel but inhuman to the extreme. It is one of the cases where even animals show a superiority over humans. What is surprising is that even those trained in the methods of science indulge in it, or tacitly support it by closing their eyes to it. Why do I refer to dowry at a convocation of technologists where there is no obvious connection? Because, I believe that good creative technology requires the highest kind of all round morality, one even higher than that described in our religious text-books. It is because we have not appreciated the need for a consistent approach to life that our technology does not find a place for itself among the best.

The usual question asked among people of my age group is why, after forty years of Independence, India, in spite of her many technological achievements, continues to be rated among the lower rung of countries of the world. Even in the Punjab, where we have always admired the hard-working farmer and the machinist, deep poverty exists. We are a country which has preached to the world for centuries on contentment, calmness and truth and yet, amongst our own educated classes, these virtues are no longer visible. It makes a mockery of our philosophy and all that the great leaders of the BHAKTI MOVEMENT preached to us.

In recent times, we have absorbed western technology in a manner worthy of admiration from all over the world. We have produced Mathematicians and Scientists of the highest calibre, but considering the large size of the country and the available human resources, we seem to be able to only just compete with the smaller, advanced countries of the world. Where then lie our deficiencies ?

The first aspect of our lives one would question in this context is our philosophy. Does our philosophy preach selfishness with its concentration on MOKSHA or release of bondage of the individual with no particular concern for the next man ? Do our traffic behaviour, our distaste of queues at bus stops and railway platforms and our business methods arise from such an attitude to life ? There is also our non-recognition of the best man amidst us and the use of unfair methods to destroy competition with him. Unrestricted jealousy seems to be a special Indian trait. It shows itself with a virulence of self-destructiveness as to affect the country, its integrity and all that we cherish as important for its stability as a nation. Or, is the problems simpler and has nothing to do with our philosophy? Is it just stupidity on our part that we cannot see what is good for us beyond a time scale, of not more than just a few years, when the rest of the world is planning for a whole new century.

Good technology requires deep concentration if it has to be creative. Individual engineers have to have the highest moral integrity so that their calculations are correct and based on facts. It should allow for no humbug of any sort. The quality of workmanship must be of the highest order or your creation can lead to the deaths of many innocent people due to slipshod work. Arrogance in technology can make your colleagues contemptuous of you.

We are a society in transition and even in our own life time have seen changes which were impossible to dream of in our younger years. Such violent transformations are bound to create new tensions and new ambitions. In such circumstances, it is not surprising that solutions seem to be too slow for the younger generation and many are tempted to resort to the use of violent methods, the inspiration coming through the cinema or the video.

It is a strange new attitude that has come about : not taking interest in one's work and allowing time to pass without anything being done is an achievement. It is believed that idleness at the expense of the employers is justified and forcing others to do the same is equally justified. Often, people who come to consult are made to wait and suffer. Many of us seem to get great pleasure in seeing others cringe for favours or go disappointed for no fault of theirs. Treating the rest of humanity roughly seems to have become a measure of power and authority. In other countries, these deficiencies would be considered a crime. Do we really have to behave like this to satisfy our ego ?

There is, in my opinion, no substitute for quality technology and its being shared with others. All this sounds simple but is not followed, perhaps for fear of loss of credit. It may even be justified in a period of transition to use strategies, if by some misfortune you happen to be in an atmosphere where your work is not appreciated. But if yo want to be a good technologist with a clean mind, remember what I have said today.

The last forty years have shown that we can do some fantastic things in India without any help from other countries. Our progress in the material and nuclear sciences has shown that by inter-disciplinary efforts, we can produce the most sophisticated of items within the country. As examples, I can mention the production of Beryllium and its alloys, the rare earth metals, superconducting devices, etc. The DHRUVA Reactor at Trombay, designed and built entirely by us, is one of the most complicated reactors in the world and has been working at its full power for several months. If, however, you pull out some of the older copies of some of the glossy magazines of Bombay and see what was said of it, you would just not believe it. It was said that this reactor would never work and everything was wrong with its design, including the leaders of the organisation. But not a word now. I mention this to warn you that appearance of items and names in the press is of no great gain for technology; it merely reflects Indian weaknesses.

You will, no doubt, ask me that if we are essentially a capable people and the country is on the threshold of several breakthroughs in technology, what, as new graduates, is your role in these new ventures ? In foreign countries, the government and industry go out of the way to recruit good people. The seriousness of our brain drain rests on the fact that this outlet is available only for the best. The cream is thus lost to the country. What are we doing about this matter ? My answer is that if we learn to recruit people on the basis of merit to the extent of just even fifty per cent and start projects which will generally improve technology quality in India, however expensive be in the beginning, the rest will take care of itself. Large investments on low quality technology with low quality people is the cause of most of our troubles. To appreciate all this requires planning through experience and not by "fast food" approaches. India is not a fast country. This is what I meant by saving in the beginning, about knowing your country first. We are loaded with an ancient past which gives us some sort of inertial stability but to remove the mass above us. we require Indian solutions with an understanding of Indian sociology and not the Western weaknesses

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CALENDAR OF EVENTS

Proposed Dates of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
May 9-June 4, 1988	Summer Course in Analysis and Probability	Topics to be covered are Probability Theory and Stochastic Processes, Fourier Analysis & Functional Analysis.	Indian Statistical Institute, Bangalore Centre.	T.S.S.R.K. Rao, In-charge, Summer School 1988, Stat-Math. Division, Indian Statistical Institute, R.V. College (P.O.) Bangalore 560 059
May 18-20, 1988	Conference on Recent Advances in Mathematical Techniques and Applications	Topics proposed to be discussed include Mathematical Physics, Mathematical Methods, Biofluid Dynamics, Chaos, Stability and Turbulence.	Dr. Y.S. Parmar Institute of Mathematical Sciences, Shimla.	Dr. J.R. Gupta, Organising Secretary, Dr. Y.S. Parmar Institute of Mathematical Sciences, Hainault, Shimla-171002
June 27-July 8, 1988	Short-term Intensive Training Programme on Abstracting & Indexing	To train the participants in the application of abstracting and Indexing methods and construction of an indexing language (Thesaurus).	National Institute of Small Industry Extension Training, Hyderabad.	Mrs. K. Subhashini, Course Director, NISIET, Yousufguda, Hyderabad-500045
July, 12-14 1988	**International Symposium on Recent Advances in Male Reproduction**	**The Symposium will focus on Molecular Biology of Inhibin, Androgen Binding, Protein Regulation of Fertility, Peptides in Testis Function and Steroidogenesis in Testis.**	**University of Hyderabad in collaboration with the Indian Society of Andrology.**	**Prof. P.R.K. Reddy, School of Life Sciences, University of Hyderabad, Hyderabad 500134**
September 26-28 1988	**International Conference on Welding Technology in Developing Countries**	**To provide an opportunity to scientists and technologists from developing and advanced countries to share their experiences in the area of Welding Technology.**	**University of Roorkee, Roorkee.**	**Prof. P.C. Gupta, Organising Secretary, International Conference on Welding Technology in Developing Countries, Department of Mech. & Ind. Engg., University of Roorkee, Roorkee-247667**
October 27-29, 1988	National Seminar on Statistics in Medicine, Health and Nutrition.	To discuss Data-Base and Analysis in Health and Nutrition—Present and Future.	Department of Statistics National Institute of Nutrition, Hyderabad.	Dr. K. Visweswara Rao, Organising Secretary, National Seminar on Statistics in Medicine, Health and Nutrition, Department of Statistics, National Institute of Nutrition, Indian Council of Medical Research, Jamai Osmania, Hyderabad-500 007
Dec. 15-17, 1988	National Conference on Fluid Mechanics and Fluid Power	To provide a forum for exchange of information on topics in flcid mechanics and design, research and development activities in areas like power generation, aerodynamics, fluidics, biomechanics, etc.	Harcourt Butler Technological Institute, Kanpur.	Dr. N.L. Kachhara, Organising Secretary, 16th National Conference on Fluid Mechanics and Fluid Power, Mechanical Engineering Department, Harcourt Butler Technological Institute, Kanpur-208002

Tatas to Set up National Institute

A National Institute of Advanced Studies is proposed to be set up by the Tatas at Bangalore under the directorship of Dr. Raja Ramanna, former Chairman of the Atomic Energy Commission. The Karnataka Government is reported to have offered an interest-free loan of Rs. 1.5 crores to be paid back in 10 years for this purpose.

The proposed institute would give a chance to administrators, industrial managers, defence personnel, scientists and technologists with a proven record of achievement in their respective fields to broaden their perspective and develop an insight into subjects like scientific philosophy, the principles of economics, the philosophy of history, psychology, defence and politics, appreciation of the arts, and Sanskrit language and literature. The first two sessions would be held in Pune till such time as the buildings in Bangalore were completed. There would be five lectures in each subject, with one lecture a day delivered by some of the best known authorities in the country. There would be two sessions a year, with each session lasting for three months and catering to not more than 50 participants in the age-group of 35 to 50. The participants would be sponsored by their respective organisations.

Dr. Ramanna stated that the institute would try to broaden the perspective of participants who otherwise had a tendency to over-specialise and take decisions without knowing enough from a cultural point of view. It will also encourage participants to take up multi-disciplinary research, based on both the sciences and the humanities.

Varsity to Sell High-Tech. Products

The School of Biology of Madurai Kamaraj University has launched an autonomous unit—Madurai Kamaraj University Biologicals—which will sell high technology products. According to Dr. S. Krishnaswamy, Vice-Chancellor, these products would be ready shortly for commercialisation, available to both foreign and Indian firms. He said the university could secure over Rs. 10 crores as aid last year for 148 projects from the various Indian and foreign funding agencies. Another Rs. 10 crores was in the pipeline for projects during this year.

High technology products to be developed include : Immuno-diagnostic Kits for detection of diseases like leprosy; Production of monoclonal antibodies against particular diseases like malaria; Unisex Cultures (a technology for producing unisex cultures of fish—for instance, producing only male fish for eating purposes since these can be fattened easily); and Growth harmones for retarding sexual maturity and prolonging the 'somatic growth' (China has already developed this technology and two researchers from the Madurai Kamaraj University spent some time in China collaborating with Chinese scientists on this project).

Other items are related to : (a) use of streptomyces for production of antibiotics (a large number of streptomyces are available in the soil) ; (b) Oligo-nucleo-tides (which are bases for DNA sequencing) for research purposes ; (c) Biocides for protection of plants against insect attacks ; (d) Skin bank for the treatment of acute burns.

Morbidity among Varsity Students

A sample survey conducted recently by the Population Studies Centre of S.V. University, Tirupati reveals that Morbidity rate among the university students in south India is of the order of 30 per cent. During the survey, sponsored by the Indian Council of Medical Research (ICMR), 25 per cent of the final year students in S.V. University, Karnataka & Kerala Universities were covered. According to Prof. P.B. Jorapur, principal investigator of the project, the morbidity rate of 30 per cent is not as low as one would have expected it to be considering their age. This rate is highest among the students of Karnataka University (32 per cent) followed by S.V. University (30 per cent), while it is lowest among the Kerala University students (22 per cent).

The principal causes of illness are flu, diarrohea, dysentry, skin disease, headache, etc. The life-time morbidity rate is highest among Kerala students (85 per cent) followed by Karnataka students (75 per cent) and the lowest being S.V. University (72 per cent).

Smoking

The prevalance of smoking among the students is not that high as one would anticipate. Nearly 10 per cent of the students have smoking habit. Most of the students generally smoke 'just for fun' or to 'give company' to their friends. This is highest (11 per cent) among Kerala students. In the other two universities the rate is only nine per cent.

About 11 per cent of the students are consuming alcoholic drinks and as in the case of smoking it is 'for pleasure' or 'give company'. Some said they drink to forget their worries or to escape loneliness. Many have started drinking at an young age of 16-20 years. Most of them have not attempted to give up the habit. But they are not addicted to it as such. They drink occasionally say once or twice a month. This habit is highest (15%) in Karnataka followed by Kerala (13%) and lowest in S V. University (7%).

Management of Sustainable Development of Mountains

Delivering a lecture on "Nehru and Sustainable Mountain Development" to mark the Nehru Centenary Celebrations at the Himachal Pradesh University, Dr. Collin Rosser, Director, International Centre for Integrated Mountain Development, Kathmandu, stressed the need for International and Regional Cooperation in the management of sustainable development in the Himalayas without disturbing its eco-systems. He said that the growth in population and exploitation of Agro Climatic conditions and natural resources of the Himalayan Region posed a danger for ecological balance which affects a hundred million people living in the plains as well. An integrated approach to solve this problem was therefore most essential, he said.

Dr. Rosser said that Pandit Nehru regarded the Himalayas as being the very symbol of the Indian Culture. He quoted instances which showed that Pandit Nehru was deeply in love with the development of mountains.

Dr. Rosser said that Himachal Pradesh deserves appreciation for the remarkable progress made in various fields of development during the last forty years. He hoped that due importance would be given to research training and information relating to the Scientific management of sustainable development of the mountains by involving the three universities of Himachal Pradesh.

Astronomy Centre at Poona

An Inter-University Centre for Astronomy and Astrophysics (IUCAA) is being set up by the University Grants Commission (UGC) in the Poona University campus to facilitate interaction among the academic, community. The centre will help participation of scientists, talented students and teachers in the fabrication and building of the Giant Metrewave Radio Telescope (GMRT).

The centre would also have an associateship programme on the lines of the International Centre for Theoretical Physics.

Orientation Course for College Teachers

The Academic Staff College of Goa University conducted its first Orientation Course for college teachers recently. Inaugurated by Dr. Gopal Singh, Governor of Goa, the course was attended by 40 participants selected from Bombay, Shivaji and Goa Universities.

The objective of the course was to create an awareness among the teachers about the problems faced by the society and the role of education in resolving these problems. The course comprised 3 components. Component I sought to create awareness of the linkages between society environment, development on one hand and Education on the other. Component II dealt with Philosophy of Education, the Indian Educational System and Pedagogy while the theme of Component III was Management and Personal Development.

Certificate Course in Folkloristics

North-Eastern Hill University proposes to introduce a Certificate Course in Folkloristics at its Shillong Campus in the Centre for Literary and Cultural Studies. The Course is of one Semester duration and will provide perspective in the scientific study of folklore with exposure to concepts and methods and familiarise the students with the rich treasure of folklore material of north-east India.

Any student who has passed BA/BSc/B Com and has interest in folklore studies is eligible for admission to this course. Further details can be had from the Head, Centre for Literary and Cultural Studies, North-Eastern Hill University, Mayurbhonj Complex, Nongthymmai, Shillong-793014.

UGC Panel on Superconductivity

The University Grants Commission (UGC) has constituted a standing committee on superconductivity to advise it on various aspects of research and education in this area. The UGC has also, in cooperation with the technical education wing of the Department of Education, taken steps to identify viable groups in different universities and institutions which are already associated with research in this area and could be activated further with some support.

Mercy Chance for Failures of Agra Varsity

Dr. B.B. Saxena, Vice-Chancellor of Agra University is reported to have recently announced that ten thousand students of various faculties of graduate and post-graduate classes, who failed last year during the university examinations, will be given one "mercy' chance this year. This facility has been given following the stopping of the supplementary examinations at the university. The students, at the graduate level, will be allowed to appear afresh in one single subject in which they had failed, while at the post-graduate level, the students will be allowed to reappear in only one paper.

Part Time Post-graduate Course in Longwall Mine Mechanisation

The Indian School of Mines, Dhanbad, has recently introduced the M. Tech (Part Time) course in Longwall Mine Mechanisation. This is for the first time that such a course of its kind in the country has been introduced. The course is presently open to candidates sponsored from the industry. Classes are held three days a week in the evening hours.

Dr. M.S. Randhawa Award

The National Literature and Arts Society, Ludhiana, has invited recommendations for Dr. M.S. Randhawa Award for the year 1988 from recognised organisations and individuals. The award will be given to the persons who have made significant contributions in the fields of literature, art, folk music and journalism. The recommendations must reach the Secretary of the Society Mr. Satbir Singh or the President Dr. Ranjit Singh, Communication Centre, Punjab Agricultural University, Ludhiana by 30th May, 1988.

Courses in Comparative Studies

The Telugu University proposes to introduce two new courses in comparative studies in Tulnathmaka Adhyana Kendram and Classical Literature (Pracheena Sahityam) from the current academic year. This was disclosed recently by the State Planning Board Vice-Chairman, Mr. Gorantala Buchaiah Choudhary.

Autonomy for Engg. Colleges

The Maharashtra Government has decided to develop the Victoria Jubilee Technical Institute, Bombay, Engineering College, Pune and the Regional Engineering College, Nagpur—all run by the Government—as autonomous educational institutes under their respective universities.

The directorate of technical education is reported to have been entrusted to draw up an elaborate programme, including short courses to equip the principals of the three colleges and their staff to shoulder the new responsibility.

Indira Gandhi Institute

The College of Physical Education, affiliated to Delhi University, has been renamed as the Indira Gandhi Institute of Physical Education and Sports Sciences.

News from Agril. Varsities

Workshop on Cotton Production

Dr. Har Swarup Singh, Vice-Chancellor, Haryana Agricultural University, inaugurated the North Zone Workshop on Cotton at Hisar recently. He said that experimental results indicated that the yields of cotton could go up considerably in India with the adoption of existing technologies. Lauding the cotton growing efforts of Haryana and Punjab, Dr. Har Swarup Singh said that both these states have come to the rescue of the Indian Cotton Industry by producing 30 lac bales of lint, thus producing more than 1/3rd cotton in India. This has been possible due to the superior varieties of the cotton and production technology developed by the scientists of the University as well as the hard work put in by the farmers of Haryana He said that quality of lint produced in Haryana was in great demand by the industries in India and abroad. He urged upon the delegates to reorient the cotton research programme so as to evolve low cost production technology to make the crop more remunerative to the farmers.

Dr. B.P.S. Rao. ex-Director of the Cotton Development Corporation, Bombay who presided over the inaugural function, said that crop management which included cultural practices, nutrient management, water management and seed management was the main thrust where the scientists should devote more attention as this aspect could help a lot in increasing the cotton production in India.

Over 90 delegates from Haryana, Punjab, Rajasthan, Uttar Pradesh, Madhya Pradesh and Delhi participated in this workshop.

PAU to Organize Soil Testing Week

The Department of Soils of the Punjab Agricultural University (PAU), in collaboration with the State Department of Agriculture, is organizing a Soil Testing Week throughout the State from May 16.

During this week-long programme, the Farm Advisory Service staff of the University will be selecting two villages in each district for soil survey. The farmers of these villages would be persuaded to get their soil tested during this week so that specific recommendations in respect of fertilizer use could be made.

The soil testing service is rendered by the Soil Testing Laboratories of the PAU, the State Department of Agriculture and some other organizations free of cost. Since the fertilizer is a costly input leaving the farm machinery, its application on soil test basis can help economising the cost of cultivation.

News from UGC

INSAT-1B Programme of UGC

Between 16th May to 31st May, 1988 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is of one hour duration every day from 12.45 p.m. to 1.45 p.m. (Repeated from 4 p.m. to 5 p.m.) and will be available on the TV Network throughout the country. For the viewers in Delhi and surrounding areas these programmes can be seen on the second channel.

16.5.88

"Introduction to Computer-II"
"Optics--III Reflection"
"Bar Pendulum"

17.5.88

"Sense and Perception"
"Dreams"
"Planning of the Economy"

18.5.88

"Doctor Answers-I"
"The Rod Cell"
"Basic Camera Controls"

19.5.88

No Telecast

20.5.88

"Functions and Graphs"
"Communication Satellites"
"Man Belongs to Earth"

21.5.88

"Art Appreciation—III"
"Into a New Century"
"Gestures Speak"

22.5.88

No Telecast

23.5.88

"Introduction to Computers-III"
"Optice-IV : Curved Mirrors-I"
"Prelude to Lasers"

24.5.88

"Leadership"
"Past is Prologue"

25.5.88

"Doctor Answer—II"
"What is Development"
"Senses of Man"

26.5.88

"Planning Aspects of Rural Housing"
"Melts to Minerals"
"The Desert"

27.5.88

"Inequalities"
"Comet"
"Recycling"

28.5.88

"Art Appreciation—IV"
"The Name of the Game is Basket Ball"

29.5.88

No Telecast

30.5.88

"Introduction to Computers—IV Basic—I"
"Optics-V; Curved Mirrors—II"
"Crystal Gazing'

31.5.88

"Effective Counselling"
"Urbanisation"
"University Round Up"

News from Abroad

New Superconductor Developed

A team of U.S. scientists headed by an Indian-American has developed a new, ceramic material that is capable of handling 100 times more electrical energy than any of the current superconducting material.

According to International Business Machines (IBM) sources, where the Indian scientist, Dr. Parveen Chaudhari, has been a research scientist, the discovery of the new material will mean to electricity what breaking the sound barrier meant to aviation or what breaking out of the earth's atmosphere meant to the space programme.

As a result of the development by the IBM team, the world's most powerful computers could be reduced to the size of a football and could probably operate 10 times faster than existing computers. All uses of electricity would be altered. The making and storing of massive quantities of electronics such as recorders and radios could be accomplished more cheaply, using less energy with greater efficiency.

SPORTS NEWS

Varsities Wrestling Team

The next Junior National Wrestling Championship is scheduled to be held at Cuttack from June 30 to July 3, 1988. For the Indian Universities Team, 35 probables have been identified who will be invited to attend the selection trials. The selected team will undergo the training prior to participation in the National Championship.

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month' while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research scholars and students of education are welcome to use these resources. The Library is open from 9-00 a.m. to 5-30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

ADDITIONS TO AIU LIBRARY

Agarwal, Subhash C. *Learning styles among creative students.* Allahabad, Central Publishing House [c 1987] xvii, 154p.

Association of Indian Universities. *Bibliography of doctoral dissertations 1984-85 : Social sciences and humanities.* New Delhi, Author, 1988 xliv, 369p.

Azad, J.L. *Higher education in India : The deepening financial crisis.* New Delhi, Radiant [c 1988] xvi, 257p.

Bakshi, P.M. *Educational institutions and judicial control analysis and guidelines.* New Delhi, Ministry of Human Resource Development and Indian Law Institute, 1987. 131p.

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General Association of International Sports Federations, 19th Congress, Amsterdam 1985. *Development of sport : Guidelines.* Amsterdam, Author, 1986. 80p.

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Indian University Association for Continuing Education. *Technology transfer through adult education centres.* New Delhi, Author, 1987. 56p.

Iyengar, B.K.S. *Light on yoga.* London, Unwin, [c 1976] 544p.

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Jayadeva Yogendra, ed. *Cyclopaedia yoga.* Bombay, Yoga Institute, 1988. 162p.

Koul, B.N. and others, ed. *Studies in distance education.* New Delhi, Association of Indian Universities, 1988. vii, 176p.

Lynam, Desmond. *Guide to the Commonwealth games.* London, BBK Publications [c 1986] 128p.

Madan, Som Nath. *Computer and library services.* Delhi, Commonwealth Publishers, 1987. viii, 192p.

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Mital, K.V. *History of Thomson College of Engineering (1847-1949) on which is founded the University of Roorkee.* Roorkes. University Press, 1986. 285p.

M.L. Kamlesh. *Physical education : Facts and foundations.* Faridabad, P.B. Publications [c 1988] xi, 460p.

Mukhopadhyay, M. *Management of change in education : A diagnostic study.* New Delhi. National Institute of Educational Planning and Administration. 20p.

Nagarajan, K. *Annamalai university 1929-1979 : A short history.* Madras, Annamalai University, 1979. xii, 177p.

New Zealand Universities Review Committee, 1987. *New Zealand's universities : Partners in national development : A summary of the conclusions and recommendations : Report.* Wallington, New Zealand Vice-Chancellors' Committee, 1987. 24p.

Rajagopalan, T.S. *Year's work in Indian librarianship.* Delhi, Indian Library Association, 1987. 235p.

Reed, David W., ed. *Spirit of enterprise : The 1987 Rolex Awards.* Berkshire, Van Nostrand Reinhold [c 1987] 460p.

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THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

HUMANITIES

Philosophy

1. Awasthi, Vinita. *Bharatiya astik darshan sampradaya mein dwait vichardhara.* HS Gour. Dr. Arjun Mishra.
2. Brahmachari Dayanand. *Vedant darshan ke vibhinna prasthanon mein moksha vichar.* BHU. Dr. Trinath Sharma.
3. Keshav Rao, K. *Social philosophy in recent Indian thought.* Osmania.
4. Khosla, Sneh. *The nature of pramanya.* Delhi.
5. Maheshwari, Archana. *The Gita's synthesis of yoga in the light of Sri Aurobindo.* BHU. Prof. L.N. Sharma.
6. Pandey, Sita Raman. *Kalidasgrantheshu Brahmaswaroop vimarshah.* BHU. Dr. S.S. Shastri.
7. Singh, Arun Kumar. *Pratyabhigya evam yogachar vigyanvad darshanon mein 'Chitta' ka swaroop.* BHU. Prof. A.K. Chatterji.
8. Verma, Meena. *Paramarthsar ka ek alochanatmak adhyayan.* BHU. Prof. L.N. Sharma.

Religion

1. Bhikkhu Phrakrubaidika Tawee Rittiratana. *Buddhism and social progress in the context of modern Thailand.* BHU. Prof. L.N. Sharma.
2. Indasara, Ittademaliye. *A study of the ethical development of personality in early Buddhism.* Delhi.
3. Mahinda, Kollupitiye. *Origin and development of the practices of Dhutangas with special reference to Theravada Buddhism.* Delhi.
4. Singh, Priya Sen. *A historical study of the ethics of Vinaya with particular reference to the Vinaya Sutra.* Delhi.
5. Soon Keum Kim. *The concept of causality in Buddhism especially in the field of Indian Buddhism and Won Buddhism of Karea.* Delhi.

Fine Arts

Music

1. Bhatnagar, Madhu. *Kumaun lok sangeet mein samajik sahityik aur sangitik tattwa.* Indira Kala. Prof. M.R. Gautam.
2. Khanna, Jatinder Singh. *Sikh bhakti sangeet mein prachalit ragon kee utpatti tatha itihasik vikas.* Delhi.

Dance

1. Dadheech, Vibha. *Bharatiya nritya kee varnamala hastmudrayen.* Indira Kala. Late Shri M.S. Kalliyanpurkar.
2. Singh, Sudha. *Anushtap Chakravarti Sangeetrai Bhavbhatt virachit anupankush nrityadhyaya ka sameekshatmak adhyayan.* Indira Kala. Dr. Puru Dadheech.

Language & Literature

English

1. Abdul Majeed, B.T. *Impact of Shakespeare on Urdu Dramas.* Madras.
2. Aneja, Mohan Singh. *American literary naturalism and Stephen Crane.* Panjab.
3. Banerjee, Benoy Kumar. *J.M. Singe; has vision of life: A critical study.* NBU.
4. Benerjee, Tutun. *Classical presuppositions of the Chicago Critics.* Osmania.
5. George, Jancy. *Memory as theme and technique in modern American drama.* Calicut. Dr. R. Viswanatha.
6. Hamza, Noman Bhai. *A critical study of the poetry of Langston Hughes.* Nagpur. Dr. P.S. Shastri.
7. Jayakar, Marshal. *Moral vision in the novels of Sholem Asch.* Madras.
8. Kotwal, Ajay. *G.B. Shaw : A study of his one act plays.* Jammu. Dr. P.P. Prasad.
9. Pradhan, Hare Krishna. *Orwell's Nineteen Eightyfour: A linguistic study.* Sambalpur. Dr. B.K. Tripathy.
10. Shukla, Janardan. *A synthesis of the Eastern and Western thought in T.S. Eliot's poetry.* Avadh. Sri Ram Kumar Tripathi.
11. Solomon Raju, Kuchipudi. *The Lure of the East : A critical study of the novels of L.H. Myers.* Andhra.
12. Verma, Ravi Prakash. *Rudyard Kipling : A study of imperial mythology in his fiction.* BHU. Dr. R R. Mehrotra.

Sanskrit

1. Acharya, Abha. *Ramanuj Das krit Ramanuj Champoo : Ek adhyayan.* Avadh. Dr. J.P. Sinha.
2. Aravamudhan, T.N. *The Rahasyatrayasaratha, Sangraha of Kumara Varadacarya : A study.* Madras.
3. Asha. *Kalidas sahitya ke pauranik sandarbhon ka strotmulak adhyayan.* Durgavati. Dr. (Smt) Ila Ghosh.
4. Balmukund. *Ayurved mein varnit rasayan kee upyogita.* K.S. Darbhanga.
5. Belwal, K.B. *Sanskrit sahitya mein neetik kathaon ka itihasik evam sanskritik vivechan.* Kumaun. Dr. D.R. Tripathi.
6. Bohara, Leela. *Mahakavi Gyansagar virachit Veerodaya Mahakavya ka samagra adhyayan.* Kumaun. Dr. Kiran Tandon.

7. Gupta, Pramila. *Girvan Gira vaigyanik sahitya Bharatiya darshanam.* Rajasthan. Dr. C.C. Tyagi.

8. Gurmeet Singh. *Vedic religion and philosophy as reflected in the Guru Nanak Bani.* Panjab.

9. Joshi, Rekha. *Vagyatalankar : Jeevanand Vidhyasagariya Teeka, sameeksha.* Rajasthan. Dr. Hari Ram Acharya.

10. Kothyari, B. *Mahakavi Prabhudatt Swami : Vyaktitva evam krititva.* Kumaun. Dr. H.N. Dixit.

11. Krishna Nand. *Kautilya Arthasastrasya parinireekshanam.* Kumaun. Dr. V.D. Pandey.

12. Madhu Rani. *A semantic study of Kalidasa's works with reference to Amarkosa.* Delhi.

13. Malaviya, Maya. *Vaishnav, puranon mein vratparvon ka adhyayan.* BHU. Dr. Babulal Mishra.

14. Malviya, Subhadra. *Auchitya siddhant ke adhar per Kalidas kee kritiyon mein auchitya vivechan.* Avadh. Dr. Ravinandan Tripathi.

15. Mohammed Abdul Rahiman, P. *Nalacandrodaya of Karunakara Variyar : A critical study and edition.* Calicut. Dr. N.V.P. Unithiri.

16. Peramjit Kaur. *A critical and camparative study af Guru Arjun Dev's thought in the light of principal upanishads.* Panjab.

17. Ravinder Nath. *A critical and comparative study of the Vyavahara Mayukha of Nil Kantha Bhatta.* Panjab.

18. Sarkar, Kaberi. *Ethical and spiritual thoughts of Ancient India as revealed in the vedas, purans and tantras.* Calcutta.

19. Shrivastav, Devbrat Lal. *Sanskrit ke smriti granthon mein nari ke kartavya-kartavy ka vivechan.* Avadh. Dr. Amarnath Pandey.

20. Somayajulu, Remilla Rama. *Memamsa sastre artha vadavicaraha.* Andhra.

21. Tiwari, Janardan. *Supadma-vyakaranasyalochanatmakamadhyayanam.* BHU. Dr. R.N. Pandeya.

22. Tiwari, Rajendra Prasad. *Sankalp Suryodaya : Ek sameekshatmak adhyayan.* Avadh. Dr. Kriparam Tripathi.

23. Vashisth, Vaidya Shyamal. *Arogyata evam deergh jeevan hetu ayurved kee vishwa ko den.* K.S. Darbhanga.

24. Venkata Subrahmanyam, Suvanam. *Saubhagya Bhaskaram of Bhaskararaya : A study.* Andhra.

25. Verma, Tulsiram. *Mrichhkatik evam Malti Madhav prakaran kee drishti se sameekshatmak evam tulnatmak adhyayan.* Avadh. Dr. Rajdev Mishra.

26. Yadav, Mahendra Pratap Singh. *Aitareya Brahman mein chitrit samaj.* BHU. Dr. K.P. Singh.

Punjabi

1. Bajwa, Malkit Singh. *Guru Arjan Dev jee dee Bani vichon prapat sarodi ansh.* Panjab.

2. Bhasin, Amarjeet. *Adhunik Punjabi pargeet da bimbvidhan.* Delhi.

3- Harpreet Kaur. *Bhai Vir Singh's tradition in Punjabi poetry : A critical study.* Delhi.

4. Janak Singh. *Mian Mohd Baksh de Saiful Maluk vich safivad.* Jammu. Dr. K.S. Suri.

Hindi

1. Ashwini Kumar. *Khal nayak tatha Hindi pauranik natak.* Panjab.

2. Dani, Sheela. *Samkaleen rachna-drishya aur Raghuveer Sahay ka krititva.* Ravishankar. Dr. Rajendra Mishra.

3. Dwivedi, Tribhuwan. *Madhya kaleen Hindi sahitya mein rashtriya bhavna ka swaroop.* BHU. Dr. Kumar Pankaj.

4. Gandhi, Premlata. *Naresh Mehta ke upanyason ka sanskritik anusheelan.* Vikram. Dr. J.K. Jalaj.

5. Gangadharan, V. *A study of the cultural aspects of the narrative poems of Dwivedi period.* Calicut. Dr. Eqbal Ahmad.

6. Gour, Anil Kumar. *Adhunik Hindi navgeet.* Avadh. Dr. (Mrs) Asha.

7. Gupta, Swaraj Prasad. *Hindi kahaniyon mein vyaktitva vishleshan.* Calcutta.

8. Haseen Bano. *Maithilisharan Gupta aur Dr. Iqbal ke kavya ka tulnatmak adhyayan.* Avadh. Dr. Shiv Narayan Shukla.

9. Hire, Marutirao Barikrao. *Kathakar S.R. Yatri : Vyaktitva evam krititva.* Marathwada. Dr. Dhanraj Mandhane.

10. Kasturi, S. *A contrastive study of the morphology and syntax of Hindi and Russian.* Madras.

11. Koshta, Dinesh Kumar. *Beesveen shatabadi ke Brajbhasha kavya mein bhakti ke swaroop : Ratnakar jee ke vishesh sandarbh mein.* Durgavati. Dr. Shrish Kumar.

12. Mrudula Kumari, Cherla. *Sri Seth Govind Das ke natakon mein nari bhavana.* Andhra.

13. Pandey, Asha. *Adhunik Hindi sahitya mein vyangya kee bhasha.* Delhi.

14. Pandey, Devi Sahay. *Tulsi ke kavya mein shringar.* Avadh. Dr. Kamlakar Pandey.

15. Rathore, Bhanumati. *Bhakti kaleen Avadhi prabandh kavyon mein lokjeevan.* BHU. Dr. Rajmani Sharma.

16. Rekha Rani. *Nal Charit Champoo kavya kee sameeksha.* KS Darbhanga.

17. Sadafal, Keertimala. *Yashpal ke upanyason mein samanyajan ke chitran ka swaroop.* HS Gour. Dr. Govind Dwivedi.

18. Satyanarayanamurti, Y.V.S. *A comparative study of Kabir and Vemana as social reformers.* Madras.

19. Shiromany. Krishna Rany. *A cultural evaluation of the novels of Hazari Prasad Dwivedi.* Calicut. Dr. P.K. Padmaja.

20. Singh, Narendra Kumar. *Sathottari Hindi kavita mein janvadi chetna.* BHU. Dr. R.N. Shukla.

21. Singh, Om Prakash. *Premchand ke kathasahitya mein Hindu Muslim sambandh.* BHU. Dr. K.N. Singh.

22. Srivastava, Poonam. *Nand das kee bhasha.* BHU. Dr. Rajmani Sharma.

23. Usha Kumari. *Shamsher Bahadur Singh ka rachnasansar.* BHU. Dr. C.R. Yadav.

24. Vandana. *Hindi navageet mein bimb yojna.* BHU. Dr. R.N. Mishra.

25. Virupanna, S.G. *Premchand aur Mulk Raj Anand kee kritiyon mein samajik yatharthata : Ek tulnatmak adhyayan.* Bangalore. Dr. B. Nijalingappa.

26. Vyas, Usha. *Nayee kavita mein saundarya vidhan.* Devi Ahilya.

Urdu

1. Akhtar, Abdur Rasheed. *Faiz Ahmed Faiz : Hayat, shakshsiyat, shairy.* Nagpur. Dr. S. Rafiuddin.

2. Akhtar, Najeeb. *An analysis in literary criticism on Urdu fiction.* JNU. Prof. Mohd. Hasan.

3. Iben Hasan, Abeedi Sehnaaz. *Urdu marseeye mein niswani kirdar.* Avadh. Prof. Shabeehul Hasan.

4. Khan, Raj-Ud-Din. *Kasimshah ka 'Hans Jawahir' aur Noor-Muhammad kee 'Indravati' ka samajik aur sanskritik adhyayan, 1936-1944, isvee.* JNU. Prof. Savitri Chandra.

Bengali

1. Basak, Sila *Bangla dhandhar bishaybaichitra-o-samajik parichay.* Calcutta.

2. Bhattacharyya, Pramodbikas. *Swabhas kabi Gobinda Das-O-tar kabya.* Calcutta.

3. Ghosh, Ratna. *Bangla gadyer paripusti sadhana paribhaser bhumika.* Calcutta.

4. Mandal, Bithika. *Gaudiya vaisnab samaje-o-sahitye Nityanand-o-tnar paribarer bhumika.* Burdwan. Dr. Rabinranjan Chatterjee.

Oriya

1. Sahoo, Bijay Kumar. *Oriya upanyasara samajika sanskrutika adhyayana, 1866-1947.* Sambalpur. Dr. G.C. Mishra.

2. Sethi, Baikunthanath. *Developmental tradition of Oriya Yatra and Baishnaba Pani.* Utkal.

Marathi

1. Bhruguwar, Suresh Purushottamrao. *Govindagraman achya kavitecha shailishastriya abhyas.* BHU. Dr. W.K. Lele.

Gujarati

1. Dwivedee, D.B *Gujarati sahityana prasang natako : Ek vivechanatmak abhyas, 1975 sudhi.* Bhavnagar. Dr. J A. Vyas.

2. Patel, J.H. *Novels of Meghani.* Saurashtra. Dr. H.M. Doshi.

Tamil

1. Balamurugan, M A. *The Po. Meenakshi Sundaranarin aaivu thiran.* Madras.

2. Brindha, S. *Thamizh novelgalil nattupura elakhia selvaakku, 1975-1986.* Madras.

3. Ganesan, N. *Bharadhikku pin thamizh urai nadai'll deseeam, 1920-1947.* Madras.

4. Indrani, G.E. *Segaveera pandianaarin thirukurat kumaresa venbaa-oru aaivu.* Madras.

5. Kalainambi, K. *Kavingyar Kannadasan'n thirai isai paadalgalil elakhiya nayam.* Madras.

6. Loganathan, P. *Vallam Venkatapathi kavidhaigal-oru aaivu.* Madras.

7. Malliga, R. *The place of women in Kovi Manisekaran's social novels.* Madras.

8. Mangayarkarasi, K. *Sangha elakhiathill ahapporulmarabugal.* Madras.

9. Pajangam, K. *Thamizhil thiranaivu pokku kaappia thiranaivu pokkil silappadhikara thiran.* Madras.

10. Parthasarathi, A.C. *Periazhvar paasurangal oru aaivu.* Madras.

11. Perumal, S. *People's organisations in North Arcot District during 1850-1950 and Tamil publications.* Madras.

12. Rajagopalan, V. *Philosophical and social aspects of Saint Karaikal Ammaiyar.* Madras.

13. Rathnamala, D. *Sri Nindra Narayana Perumal Temple Complex.* Madurai.

14. Ratnasabapathy, P. *Aringyar Annavin sattamanra uraigal, samudaya, arasial elakhia paarvai.* Madras.

15. Richard, Anjala. *A comparative study on the hymns of Thanjai Vedanayaga Sastriar and Charles Wesley of England.* Madras.

16. Seshadri, N. *Psychological approach to Sangam literature.* Madras.

17. Subbarayalu, G. *Studies in Mahavidivan Meenakshi Sundaram Pillay's Andhadi works.* Madurai.

18. Surulivelu P. *Development of figures of speech in Sangam Tamil literature.* Madurai.

19. Umavathi, N. *Kaappiangalil avalakkoorugal Silappathikaram perungkathai sinthamani sirappaivu.* Madras.

20. Varadarajan, P.K. *Nambiandaar nambi in elakhiappani.* Madras.

Kannada

1. Nagaraj, M.N. *Development and standardisation of staggered paired words in Kannada.* Bangalore. Prof. G.N. Narayana Reddy.

Telugu

1. Appa Rao, Ch. *A study of the Telugu dialect of Kalingas.* Nagarjuna. Prof. T. Donappa.

2. Lakshmana Rao, H. *Telugulo burrakathalu.* Osmania.

3. Prasad, B. *Digambara kavitha in Telugu.* Nagarjuna. Prof. T. Donappa.

4. Sankara Reddy, A. *Critical analysis of Chandrika Parinayamu.* Nagarjuna. Dr. B. Ramabrahmam.

5. Sarma, S. Chandramouli. *Nannaya Ruchirartha Sukthi Nidhitwam.* Nagarjuna. Dr. S. Gangappa.

6. Vithalachary, K. *Telugu navallallo swatantrayodyasa chitranam, upto 1947.* Osmania.

Geography

1. Jain, Vimalchandra. *Bundi District : A study of habitat.* Vikram. Dr. B.M. Singhal.

2. Pathak, Satya Prakash. *Uttar Pradesh ke tirtha sthalon ka aitihasik bhaugolik adhyayan.* BHU. Dr. Bechan Dube

Maharashtriya Mandal's Chandrashekhar Agashe College of Physical Education
PUNE-37.

REQUIRES

A Lecturer in Physical Education

Qualifications

B.Sc. (B+)
B.Ed. (Phy. Edn.) or B.P.Ed. having Mathematics as one of the teaching methods (B+)
M.Ed. (Phy. Edn.) or M.P.Ed. (B+)
M.Ed. Phil. (In Education or Phy. Edn.)
Expert in Athletics—Most essential.

Experience

At least 5 years teaching experience in Secondary School and or 3 years teaching experience in College Education or College of Physical Education.

This post is strictly reserved for candidate belonging to Scheduled Tribe. If such candidate is not available, then only other candidate will be considered for temporary appointment.

Persons who are already employed should send their applications through proper channel.

Pay-Scales and service conditions are as per U.G.C./ Govt. of Maharashtra rules.

Last date of receiving applications is **20 May, 1988.**

PRINCIPAL

3. Shanmuganandan. S. *Ecological structure and spatial pattern of primary health care system in Madurai District Tamilnadu.* Madras.

4. Singh, Akabal Bahadur. *Kalidas kee kritiyon ka bhaugolik adhyayan.* BHU. Dr. Onkar Singh.

5. Singh, Ganga Ram. *Regional imbalances of food crops productivity in Rajasthan : A study in methodology.* Rajasthan. Dr. (Mrs) Lakshmi Shukla.

6. Singh, Lal Bahadur. *Jaunpur Janpad mein jansankhya aur adivasion ka bhaugolik vishleshan.* Avadh. Dr. Virendra Kumar Shrivastav.

History

1. Bhatnagar, Smriti. *Uttar Mughal kaleen Wazir, 1707-1761.* BHU. Dr. K.L. Srivastava.

2. Chander Prabha. *Nobility under Akbar, 1556.A.D. to 1605 A.D.* BHU. Dr. J. Chaubey.

3. Dabas, Bal Kishan. *The political and social life of the jats in Northern India during the seventeenth and eighteenth centuries.* Delhi.

4. Dorothy Dkhar, Rita. *The Inglis and Company and the lime trade in Khasi Hills.* NEHU. Prof. J.B. Bhattacharjee.

5. Ganapathy, A. *History of the Kallars of Melur Region.* Madurai.

6. Jeyaraj, K.V. *The history of Abkari under the Board af Revenue in Madras Presidency.* Madurai.

7. Khan, Muhammad Hussain. *History of the Muslim education in the Tamil country from 1700 to 1857 A.D.* Madras.

8. Mishra, Mahima. *Lord Ripon aur uske shasan kal mein sthaniya swashasan ka vikas.* BHU. Dr. (Smt) S. Gupta.

9. Mohan Das T. *Economic History of Andhra : 1707-1801 analysis of economic transition,* Osmania.

10. Nongmaithem, Pramodini Devi. *The cultural history of early Manipur.* Manipur. Prof. Gangumej Kabui.

11, Nutan Kumari. *Civil Disobedience Movement in Bihar, 1930-1934.* BHU. Dr. J.P. Misra.

12. Pant, Daya. *19veen evam 20veen shatabdi mein Kumaun ke vyapar evam vanijya ka itihas, 1815-1947 tak.* Kumaun. Dr. *M.K. Rastogi.*

13. Rai, Vijai Shankar. *The last phase of the transfer of power in India.* BHU. Dr. J.P. Mishra.

14. Sadasivan, P. *History of the weaving community in Tamil Nadu.* Madurai.

15. Saraf, Jyoti. *Gupta kal mein nari kee sthiti ka adhyayan.* HS Gour. Dr. Sudhakar Pandey.

16. Sharma. Sharuti Parkash. *Socio-economic changes in Kangra District, 1846-1910 A.D.* Jamia. Prof. B.R. Grover.

17. Singh, Chandra Pratap. *Dwelling houses in North India, 600 B.C. to 600 A.D.* Avadh. Dr. Purushottam Singh.

18. Singh, Manju. *Poorva madhyakaleen rajnaitik sangharsh evam Kannouj ka anudan.* Avadh. Dr. R.B. Singh.

19. Singh, Mithilesh Kumar. *The political condition of Bihar on the eve of Muslim rule.* Magadh.

20. Singh, Uma. *Studies in the Jaina Prabandhas.* BHU. Dr. V. Pathak.

21. Srinivasa Desikan, V,N. *Kaveripakkam : It's place in the history and art of Tamil Nandu.* Madras.

22. Trivedi, Malvika. *Pramukh grahya sootra tatha smritiyon mein vivahik vyavastha ka vishleshanatmak adhyayan.* Durgavati. Dr. G.B. Pandey.

23. Umesch Singh *Jianagam. asahitya mein shiksha samaj evam arthvyavastha.* BHU. Dr. B.P. Singh.

24. Yadav, Chitra. *Prachin Bharat ka samajik evam arthik adhyayan : Chhathi shadi isvi purva se dwittiya shadi isvi purva tak.* Avadh. Dr. K.P. Singh.

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UNIVERSITY OF ROORKEE

ROORKEE—247 667

ADMISSION TO POST-GRADUATE PROGRAMMES 1988-89

Applications are invited for the following Programmes commencing on August 1, 1988 :

1. **Master of Engg. Courses of 1½ Years (3 Semester) Duration**

(a) Chemical Engineering

* Advanced Transfer Processes * Computer Aided Process * Plant Design * Industrial Pollution Abatement.

(b) Civil Engineering

* Building Science & Technology * Computer Aided Design * Environmental Engg. * Geotechnical Engg. * Hydraulic Engg. * Remote Sensing & Photogrammetric Engg. * Structural Engg. * Transportation Engg.

(c) Earthquake Engineering

* Soil Dynamics * Structural Dynamics.

(d) Electrical Engineering

* Measurement & Instrumentation * Power Apparatus & Electric Drives * Power System Engineering * System Engineering & Operations Research.

(e) Electronics and Computer Engineering

* Communication System * Control & Guidance * Microwave and Radar * Solid State Electronics * Television Technology● * Computer Science & Technology (M. Tech.).

(f) Mechanical & Industrial Engineering

* Machine Design Engg. * Production & Industrial System Engg. * Thermal Engg. * Welding Engg.

(g) Metallurgical Engineering

* Extractive Metallurgy * Industrial Metallurgy * Physical Metallurgy

(h) Water Resources Development

* Civil● *Electrical● * Mechanical● * Water Use Management●

(i) Hydrology

* Hydrology●

* **Eligibility for Admission**

* Bachelor's degree in the appropriate field of Engineering/Technology.

● Post-graduate Diploma in respective courses

2. **Master of Arch. and Planning Courses of 1½ Yeas (3 Semester) Duration**

Architecture * Urban Rural Planning●

* **Eligibility for Admission**

* Bachelor's degree in Architecture.

● Alternately Master's degree in Geography.

3. **Post-Graduate Diploma Course of 1 Year (2 Semester) Duration**

* Earthquake (Earthquake Engg./Earthquake Technology)

* Electronics & Computer Engg. (Television Technology)

* Hydrology (Hydrology)

* Humanities & Social Sciences. (Industrial Management)●

* Water Resources Development (Civil/Electrical/Mechanical/Water Use Management)

* **Eligibility for Admission**

* Bachelor's degree in Engineering or Master's degree in Sciences in the appropriate discipline.

● Alternately Master's degree in Economics/Psychology / Commerce with Mathematics at Bachelor's degree level.

4. **M. Phil Programmes of 1 Year (2 Semester) Duration**

* Chemistry (Industrial Methods in Chemical Analysis)

* Mathematics (Computer Applications/Mathematics)

* Physics (Instrumentation/Material Science)

* **Eligibility for Admission**

* Master's degree in sciences in the appropriate discipline.

5. **M. Tech. Programmes of 3 Years (6 Semester) Duration**

* Earth-Sciences (Applied Geology/Applied Geophysics)

* **Eligibility for Admission**

* Bachelor's degree in Sciences in appropriate discipline.

6. **Master of Science Programmes of 2 Years (4 Semester) Duration**

* Applied Geology * Applied Mathematics * Bio-Sciences and Biotechnology● * Chemistry * Physics

* **Eligibility for Admission**

* Bachelor's degree in Sciences in the appropriate discipline.

●Alternately Bachelor's degree in Agriculture/Pharmacy Veterinary Science/Animal Husbandry.

Information Bulletin containing Application form will be supplied on payment of Rs. 20/- (Rupees Twenty only) by crossed Postal Order/Bank Draft/University receipt payable to Registrar, University of Roorkee, Roorkee, from the office of the Assistant Registrar (Academic), University of Roorkee, Roorkee-247667 in person or by sending a self-addressed 26 x 17 cms. envelope with postage stamp of Re. 1/- affixed to it. Last date for receiving request for application form is June 6 by post or June 14, 1988 in person. Last date for receipt of complete Application Form is **June 15, 1988.**

Andhra Pradesh Open University Hyderabad

ADMISSION NOTIFICATION

B.A., B. Com. & B. Sc. Courses—1988-89

The Andhra Pradesh Open University invites applications (i) from all those who have passed Intermediate Examination or its equivalent, **without age restriction;** (ii) Also from those candidates who will be completing 21 years age by 1st July, 1988 and have passed the Eligibility Test conducted by Andhra Pradesh Open University, in the years 1986 and 1987 (who for some reason could not seek admission in that particular year) for direct admission into the B.A., B. Com., and B.Sc., courses; and (iii) from all those candidates who have appeared at the Intermediate Public Examinations held in March/April, 1988 and are awaiting for results. However, their admission will be confirmed on submission of the pass certificate.

Mode of Instruction : The University adopts a multi-media approach by supplying printed course material (prepared by experts); broadcasting radio lessons; making available Audio Cassettes and Video lessons and arranging Contact-cum-Counselling programmes on Sundays and in the evenings on other days, at the study centres, to suit the convenience of office and factory-goers, house wives etc. The candidates will be admitted into the study centres, as indicated below, which are located in each district of the State and in the twin cities of Hyderabad and Secunderabad.

HOW TO OBTAIN APPLICATION FORM

By Post : You can obtain the application form by post from the office of the Director, Student Services Branch, 8-3-952/10/6 & 7, Srinagar Colony Road, Panjagutta, Hyderabad-500 016 by sending a crossed DD(s)/IPO(s) for Rs. 10/- drawn in favour of 'The Registrar, Andhra Pradesh Open University, Hyderabad' along with the requisition letter superscribed on the cover 'Application for Direct Admission to First Year B.A., B.Com., B.Sc. course for the academic year 1988-89. The sale of Application requisitions by post will be entertained upto 18-05-1988 only.

By Person : You can obtain the application in person by submitting either a crossed DD(s)/IPO(s) for Rs. 5/- drawn in favour of 'The Registrar, Andhra Pradesh Open University, Hyderabad' from (a) the Office of the Director, Student Services Branch, 8-3-952/10/6 & 7, Srinagar Colony Road, Panjagutta, Hyderabad-500016 (b) Public Relations branch, APOU 6-3-645, Somajiguda, Hyderabad, (c) Office of the Co-ordinators of the following Study Centres of A.P. Open University (from 3.00 p.m. to 6.00 p.m. daily except on Thursday and public holidays).

Twin Cities : 1. Kachiguda Junior College, Hyderabad; 2. D.B.P.M. College, Secunderabad (Key's High School Premises); 3. Govt. Women's College, Begumpet (Opposite to Hyderabad Public School).

Districts : 1. Adilabad (Govt. Degree College) 2. Anantapur (Govt. Degree College) 3. Cuddapah (Govt. Degree College for Men) 4. Eluru (Sri C.R. Reddy College) 5. Guntur (J.K.C. College) 6. Karimnagar (S.R.R. Govt. Degree College) 7. Khammam (S.R. & B.G.N.R. Govt. College) 8. Kurnool (Silver Jubilee Govt. College) 9. Mahaboobnagar (M.V.S. Arts & Science College) 10. Nalgonda (Nagarjuna Govt College) 11. Nellore (Sri Sarvodaya College) 12. Nizamabad (Giriraj Govt. College) 13. Ongole (C.S.R Sarma College) 14 Rajahmundry (Govt Degree College) 15. Siddipet (Govt. Degree College) 16. Srikakulam (Govt. College) 17. Tirupathi (S.V. Arts College) 18. Vijayawada (P.B. Siddartha College) 19. Visakhapatnam (Dr. V.S. Krishna Govt. College) 20. Vizianagaram (Maharaja College) 21. Warangal (Arts & Science College, Kakatiya University Campus-Subedari) 22. Sirpurkagaznagar (Govt. Jr. College) 23. Hindupur (S.D.G.S College) 24 Polavaram (Govt. Jr College) 25. Peddapalli (Govt. Jr College) 26. Godavarikhani (Govt. Jr. College) 27. Kothagudem (K.Y.K.R.Y. & B.N. Goud's Govt. Jr. College) 28. Shadnagar (Govt. Jr. College) 29. Alair (Govt. Jr. College) 30. Kavali (Jawahar Bharathi College) 31. Banswada (Govt. Jr. College) 32 Pithapuram (R.R.B.H.R. Govt. Jr College) 33. Kakinada (P.R. Govt. College) 34. Sangareddy (Tara Govt. Degree College) 35. Chittoor (P.V.K.N. Govt. Degree College) 36. Kuppam (M.F.C. Govt. Jr, College) 37. Satyaveedu (Govt. Jr. College) 38. Machilipatnam (Andhra Jateeya Kalasala) 39. Yelamanchili (Govt. Jr College) 40. Mulug (Govt. Jr. College) 41. Vikarabad (S.A.P. Arts & Science College) 42. Khammam (Govt. Degree College for Women) 43. Martur (Govt. Jr. College).

* The Application Forms can be obtained.

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* **Last Date for receipt of filled-in application form along with prescribed fee at the Office of the Director, Student Services, APOU**	**On or before 31-5-1988.**

REGISTRAR

Central Drug Research Institute

(Council of Scientific & Industrial Research)

ADVERTISEMENT No. 4/88

Applications are invited for the following posts in Central Drug Research Institute, Lucknow :

1. **Scientist E1** : One post (Clinical & Experimental Medicine)
(Rs. 3700-125-4700-150-5000)
M.D. with 10 years experience in Clinical Pharmacology as evidenced by publications on clinical studies. **Job Requirement** : To initiate, plan and conduct clinical trials on compounds under development as drugs. Experience in human pharmacokinetics would be a desirable qualification.

2. **Scientist 'C'** : Five posts
(Rs. 3000-100-3500-125-4500)

Post No. (i) (At Seth G. S. Medical College, C.P.U., Bombay) M.D. with 4 years research experience preferably in clinical pharmacology as evidenced by publications. **Job Requirements** : To help in conducting clinical trials on compounds under development as drugs.

Post No. (ii) (Parasitology)

Ist Class M.Sc. (Zoology/M.V.Sc. (Parasitology) with 6 years experience as evidenced by published papers in chemotherapy/Immunology/Immunopharmacology of helminthic infections or M.D. with 4 years experience/Ph.D. with two years research experience in the field. **Job requirement** : To carry-out chemotherapeutic/ Immunological investigations in helminthic infections.

Post No. (iii) (Parasitology)

Ist Class M.Sc. (Zoology/Microbiology)/M.V.Sc. (Parasitology) with 6 years experience or M.D. with four years experience in Cell Biology/Immunology of protozoans infections/Ph.D. with two years experience in the subject. **Job Requirement** : To carry out chemotherapeutic/ immunological (immunoprophylactic and immuno diagnostic) investigations in experimental Leishmaniasis.

Post No. (iv) (Toxicology)

Ist Class M.Sc. (Zoology/Physiology) with six years experience/M.D. with four years experience/Ph.D. with two years experience in the field of cytogenetics and mutagenesis as evidenced by publications. **Job Requirement** : To carry out studies in the Toxicology of Drugs with particular reference to their cytogenetic and mutagenetic action and related chromosome studies.

Post No. (v) (Pharmacology)

M.D. (Pharmacology) with 4 years experience/Ph.D. (Pharmacology/Biochemistry) with two years experience as demonstrated by original publications in the field of Neuropharmacology, with consistently good academic career. **Desirable** : Experience of using modern pharmacological techniques like radio-receptor binding/auto-radiography/microspheres and behavioural equipment. **Job Requirement** : The candidate will be expected to undertake and guide independently research in the area of Neuro-pharmacology including new drug development programme in the area.

3. **Scientist 'B'** : Four posts (Unreserved —2)
(Rs. 2200-75-2800-EB-100-4000) (Reserved for S.C.—1)
(Reserved for S.T.—1)

Post No. (i) (Endocrinology) (Reserved for S.C.)

Ist Class M.Sc. in Biochemistry/Physiology/Zoology or M.V.Sc. (Physiology) or Ph.D. in any of the above subjects. Experience in mammalian reproduction will be an added qualification. **Job Requirement** : To undertake studies on reproductive biology of mammals and development of antifertility agents.

Post No. (ii) (Physiology)

Ist Class M.Sc. (Biophysics/Physics/Biochemistry/Zoology/Physiology or Life Sciences)/M.V.Sc. (Physiology, Pharmacology)/M.Pharm (Pharmacology)/M.B.B.S. Three years research experience in a field closely allied with job requirement is desirable.

OR

M.D./Ph.D. in the above subjects. Experience in theoretical or experimental electrophysiology. **Job Requirement** : The candidate will undertake theoretical and experimental investigations on the ionic channel activities in multicellular and isolated single cell preparations

Post No. (iii) (Parasitology) (Reserved for S.T.)

1st Class M. Sc. (Zoology/M.V.Sc. (Parasitology) or M.B.B.S. **Desirable** : 3 years research experience in Immunochemistry/Immunology including immunoprophylaxis and immunodiagnosis of helminthic infections. Ph.D. or M.D. in the subject will be considered as additional qualification. **Job Requirements** : To isolate and characterize antigens of helminth parasites and to avaluate their immunogenicity and immunodiagnostic potential.

Post No. (iv) (Microbial Genetics)

Ist Class M.Sc./Ph.D. in any area of Life Sciences including Biochemistry and Biotechnology. **Job Requirement** : Specialization in protein biochemistry of antigen and/or enzyme isolation and characterization.

4. **Senior Technical Assistant :** Three posts (Unreserved—2)
(Rs. 1640-60-2600-EB-75-2900 (Reserved for S.T.—1)

Post No. (i) (Clinical & Experimental Medicine)

B.Sc. with Biology with 5 years experience or M.Sc. Zoology with good academic career. **Desirable :** Familiarity with clinical trials, experience in taking and evaluation of Papsmear of women volunteers would be preferred. **Job requirement** : To assist the Sr. Scientists in the Clinical Trials and relevant clinical investigations.

Post Nos. (ii) & (iii) (Photography) (1 post reserved for S.T.)

Degree in Commercial Arts/5 years Diploma Course in Colour and black and white photography/ 3 years course in Medical Science photography from a recognised Instt. or University with 3-5 years experience after graduation. **Job Requirement** : The candidate will be required to undertake the work of Photomicrography, microphotography, outdoor and indoor colour and black and white photography and may have to draw scientific diagrams and charts.

5. **Junior Technical Assistant :** Five posts (Unreserved —3)
(Rs. 1400-40-1800-EB-50-2300) (Reserved for S.C.—1)
(Reserved for S.T.—1)

Post No. (i) (Animal House)

B.Sc. degree with Zoology as one of the subjects and a good academic record. Candidates having experience in an Animal House or Animal Res. programmes will be preferred. **Job Requirement** : To carry out breeding operations, experimental manipulations maintenance of animal breeding records, implementation of routines of feeding cleaning operations, animal rooms and Laby. maintenance.

Post No. (ii) (Biochemistry) (Reserved for S.T.)

B.Sc. (Chemistry, Botany, Zoology or Chemistry, Physics, Maths) with good academic record. Two years experience desirable. **Job Requirement** : To carry out work in the Biochemistry, immunology of parasites.

Post No. (iii) (Chemistry) (Reserved for S.C.)

B.Sc. with Chemistry with good academic record. **Desirable** : Two years experience in a Lab. **Job Requirement** : To carryout the Laboratory work of medicinal chemistry.

Post No. (iv) (Pharmacology)

Graduate degree in Science with Zoology as one of the subjects and good academic record. Candidates having experience of working in pharmacological Laboratory and conversant with using newer techniques will be preferred. **Job Requirement** : To help the senior scientists in carrying out biological screening of new compounds and basic research.

Post No. (v)

B.Sc. with Chemistry as one of the subjects.
Desirable : One year course in programming and handling of computers. An experience in working on Micro-VAX and IBM) PC XT systems and in use of 3-D graphics for organic molecules of biological interest will be desirable. **Job Requirement** : To assist in the QSAR and Computer-graphics work in the Institute.

6. **Junior Engineer :** One post
(Rs. 1400-40-1800-EB-50-2300)
Three years Diploma in Civil Engineering/Architect or equivalent. Two years experience in Civil work desirable. **Job requirement** : Preparation of estimates for civil works, actual execution of civil work, preparation of bills and recording of M-B. In addition should be able to handle the day-to-day civil maintenance works.

General Conditions

1. All the above posts carry usual allowances as admissible under the rules of Govt. of India. Total emoluments at the minimum and the maximum of the grades including H.R.A. at present are as follows :

Scale	Minimum	Maximum
Rs. 3700-5000	Rs. 5030/-	Rs. 6530/-
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Rs. 2200-4000	Rs. 3011/-	Rs. 5330/-
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Rs. 1400-2300	Rs. 1867/-	Rs. 3124/-

2. Candidates belonging to S.C./S.T. conmmunities should invariably enclose an attested copy of original caste certificate issued by a competent authority with their application failing which they will not be

entitled to the concessions otherwise admissible to them. In the event of non-availability of S.C./S.T. candidates for the post of Scientist 'B' the post will be filled up by general candidates by following the prescribed procedure.

3. Since it is not possible to call all the eligible candidates for the interview, the applications will be shortlisted for the purpose and the decision of the Director will be final.
4. Applicants called for attending interview will be paid single second clas rail-fare to and fro the actual place of undertaking the journey or from the normal place of residence as mentioned in the application whichever is earlier to Lucknow Railway Station.
5. The prescribed application form may be obtained from the office of the Controller of Administration, Central Drug Research Institute, Chattar Manzil Palace, P.B No. 173, Lucknow-226001 (U.P.), by sending a requisition duly indicating the post and adverisement number alongwith a self-addressed envelope of size 23 x 10 cm. Any request for application form received after **19.5.88** will not be entertained for supply by post. Application duly completed (supported by the attested copies of certificates and testimonials) alongwith a non-refundable fee of Rs. 10/- (no application fee is prescribed for SC/ST candidates) in the form of crossed Indian Postal Order drawn in favour of the Director, Central Drug Research Institute, Lucknow should reach the Director, Central Drug Research Institute, Lucknow, on or before **30.5.1988**. Application received after this date will not be considered.
6. Separate application for each post alongwith requisite postal order in a separate envelope indicating the advertisement number and post applied for should be sent.
7. The candidates in Government/Semi-Government Organisations, Public Undertakings and Autonomous Bodies should route their applications through proper channel.
8. The number of vacancies to be filled may vary at the time of actual selection and due consideration for reservation of posts will be given where necessary.
9. Persons selected for the posts of Scientist E. 1, Scientist 'C' and Scientist 'B' will be appointed on contract for six years including probationary period of two years. The other posts are temporary but likely to continue on year to year basis.
10. The Institute has a system of periodical assessment promotion on merit.
11. The candidate selected for post no. 2(i) will have to join Clinical Pharmacology Unit at Seth G.S. Medical College, Bombay.
12. Canvassing in any form and/or bringing in any influence political or otherwise, will be treated as a disqualification for the post.

INTERIM INQUIRIES WILL NOT BE ENTERTAINED.

VECTOR CONTROL RESEARCH CENTRE

(Indian Council of Medical Research)
MEDICAL COMPLEX, INDIRA NAGAR
PONDICHERRY-605 006

M. Sc. in Medical Entomology

ADMISSION NOTICE FOR THE THIRD BATCH FOR THE ACADEMIC YEAR 1988-89

Applications are invited for admission to the 2 year M. Sc. Course (Trimester Pattern) in Medical Entomology, affiliated to the Central University, Pondicherry. Those who have passed (i) B Sc. with Zoology or Biology as one of the subjects, (ii) M.B B.S., (iii) B.V.Sc, or (iv) B. Sc. in Medical Laboratory Technology are eligible for admission.

The course is run by the Vector Control Research Centre, which is one of the permanent research institutes of the Indian Council of Medical Research and is also supported by the UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases. The Centre has excellent facilities for research and training in vector borne diseases and their control. The faculty includes both the staff of the Centre and invited Guest lecturers from research institutions in India and abroad.

Six candidates (one seat reserved for SC/ST candidates) will be selected on the basis of a written test. Another three candidates will be admitted from among inservice candidates nominated by State/Central Governments and another three seats are reserved for WHO sponsored candidates. The qualifying degrees of foreign srudents will have to be recognized by the Central University, Pondicherry. For the six open seats, only first class graduates will be called for the written test (SC/ST candidates securing II class in the qualifying degree are eligible to appear for the written test).

Candidates selected for admission on Open General Quota are likely to get a monthly fellowship of Rs. 800/- for 2 years from the ICMR.

Application forms and prospectus can be obtained from, "**The Director**, Vector Control Research Centre, Indira Nagar, Pondicherry 605 006" on or before **15th June 1988** on payment of Rs. 15/- by a crossed Indian Postal Order drawn in favour of the "Director, Vector Control Research Centre, Pondicherry-605 006". The last date for receipt of completed application form is **10th July, 1988.**

P. K. Rajagopalan
DIRECTOR

CLASSIFIED ADVERTISEMENTS

NATIONAL METALLURGICAL LABORATORY

Council of Scientific & Industrial Research

JAMSHEDPUR-831007

NML Advertisement No. 1/88

Applications are invited to fill up the following vacancies for Scientists at the National Metallurgical Laboratory (NML), Jamshedpur 831007, in the grades and disciplines mentioned against each. NML's objective is 'pursuit of excellence in research in the preparation and properties of engineered materials and the application of the results of the research for the benefit of the Society'. The applicant's background, commitment and career goals should commensurate with the achievement of NML's objective.

I. Scientists

Category—I : Scientist 'EI/EII —3 Posts

Scale of Pay —Rs. 3700-125-4700-150-5000 (EI) Rs. 4500-150-5700 (EII)

Scientist C —6 Posts
Scale of Pay—Rs. 3000-100-3500-125-4500

The above positions are available in the Sectional areas indicated against the following 7 R & D Divisions of the Laboratory :

1. **Computer Applications** : Numerical Methods/Process Simulation
2. **Corrosion Projection** : Inhibition
3. **Ferrous Process** : Process Development/Refratories
4. **Material Evaluation** : Fatigue & Fracture/Non-Destructive Evaluation
5. **Material Processing** : Casting & Powder Processing / Mechanical Shaping
6. **Mineral Processing** : Mineral Beneficiation/Agglomeration
7. **Non-Ferrous Process** : Smelting & Refining / Extraction & Electrowinning

Essential Qualifications

Either a First Class Bachelor's Degree in Engineering or a First Class M Sc., Degree in a relevant discipline, excellent achievement record in research and its application with hands-on R&D experience (12 years for Scientist EI/EII and (6 yeaes for Scientist C)— in any of the above mentioned areas

OR

Either a Post-graduate Degree in Engineering or Ph.D. in Science in a relevant area; excellent achievement record in research and its application with hands-on R&D experience (10 years for EI/EII) and (4 years for C)—in any of the above mentioned disciplines.

Category—II : Scientist B —6 Posts

Scale of Pay : Rs. 2200-75-2800-EB-100-4000

The above positions are available in the Sectional areas indicated against the following six R&D Divisions of the Laboratory :

1. **Analytical Chemistry** : Instrumental/Standard Sample
2. **Computer Applications** : Process Simulation/Systems
3. **Corrosion Protection** : Protection & Coatings/Corrosion Behaviour
4. **Ferrous Process** : Ore reduction
5. **Material Process** : Physical & Structural Characterization
6. **Mineral Processing** : Mineral Characterisation

Essential Qualifications

Either First Class Bachelor's Degree in Engineering or a First Class M.Sc., Degree in a relevant area. Excellent achievement record and Post Graduate Degree in Engineering or Ph.D. in Science in a relevant field will be preferred.

II. Fellow Post 6 Nos

(Quick Recruitment of Scientists for Major Projects)
Duration—for a maximum period of 3 years

Level of Emoluments :

Range-1 : Rs. 2400 / 2500 / 2600/2800/2900/3000
Range-2 : Rs. 3000 / 3100 / 3200/3400/3500/3600/3800/4000
Range-3 : Rs. 3600 / 3800 / 4000/4300/4600/4800/5000

The above positions are available in the Sectional areas indicated in Category I & II above R&D Divisions of the Laboratory.

Essential Qualifications

(i) **Range-I** : M.Tech. or equivalent degree/Ph.D. (Science) with uniformly outstanding academic record, & clear potential for high quality R&D work.
(ii) **Range-2** : M.Tech, or equivalent Degree with three years experience / Ph.D. (Science) / Ph.D. (Engg.) / with outstanding academic record and proven ability for high quality R&D work.
(iii) **Range-3** : M.Tech. / Ph.D. or equivalent Degree in respective discipline, with original work as evidenced by highly innovative patents or outstanding publications — evidence of leadership, with minimum of 5 years' R&D experience.

III. System Analyst —1 Post

Scale of Pay : Rs. 3000-100-3500-125
4500

Essential Qualifications

First Class Bachelor's Degree in Engineering/Computer Science or Post Graduate/Master's Degree in Mathematics/Statistics / Physics / Business Administration / Management with 6 years experience in design and development of application softwares in BASIC/FORTRAN/PASCAL/COBOL.

OR

Post Graduate Degree in Engineering/ Computer Science with 4 years experience in Design & Development of application Softwares as above.

General Information

1. All posts other than Fellows carry usual allowances as admissible under the Central Government Rules. Fellows are entitled to consolidated amounts only, plus the usual House Rent Allowance and Medical benefit as per rules.
2. Upto 5 advance increments could be recommended by the Selection Committee for candidates with truely exceptional credentials and performance.
3. Application form for all posts are obtainable by post (Free of cost) from the Administrative Officer, National Metallurgical Laboratory, Jamshedpur-831007, by sending self-addressed and stamped envelope (Rs. 1.80 paise) of 28 x 13 cm. Completed application forms together with non-refundable application fee of Rs. 8.00 (Rs. 2.00 for Scheduled Caste/ Scheduled Tribe candidates) in the form of a **Demand Draft on the State Bank of India, NML Branch, Jamshedpur, drawn in favour of the Director, National Metallurgical Laboratory, Jamshedpur,** alongwith attested copies of certificates/ testimonials etc., should reach the Director, National Metallurgical Laboratory, Jamshedpur-831007, on or before **Ist June, 1988.**
4. Candidates applying for more than one post should submit separate applications along with the prescribed application fee specifying No. of advertisement and post applied for.
5. Incomplete applications and those received after the last date will not be considered.
6. Details of the job description/ requirements, salary allowances, perks and scope of advance increments will be made available along with the Application Form on request including general conditions of service.

UNIVERSITY OF LUCKNOW

Advertisement No. 1/1988

WANTED

1. Dean / Director / Coordinator of College Development Council in the grade of Rs. 1500-60-1800-100-2000-125/2-2500 (unrevised).

Qualifications

Candidates must have hold the post of Professor/Principal/Director or an equivalent position in a University, College or Institute for at least five years. Candidates possessing administrative experience and familiarity with the functioning of a University vis-a-vis colleges and with their development will be given preference.

Age : Not above 62 years on 1.4.88.

2. One Reader for Academic Staff College in the grade of Rs. 1200-50-1300-60-1900 (unrevised)

Qualifications

(a) Good academic record with a doctorate degree or equivalent published work and active engagement in research or innovation in teaching methods or production of teaching materials ; and

(b) Five years' experience of teaching or research including at least three years as Lecturer or in an equivalent position.

Candidates with experience of organising orientation-training programmes will be preferred.

3. One Lecturer for Academic Staff College in the grade of Rs. 700-40-1100-50-1600 (unrevised)

Qualifications

(a) A doctorate degree or research work of an equally high standard; and

(b) Consistently good academic record with first or high second class Master's degree or an equivalent degree of a foreign University.

Candidates with experience of organising orientation/training programmes will be preferred.

General

The posts are temporary upto March 1990 but are likely to continue thereafter. The tenure of appointment will initially be upto March 1990.

The prescribed application forms can be obtained free of cost by sendinga self-addressed envelope size 23 x 10 cm. with postage stamp worth Rs. 5.50. Last date for submission of applications duly completed in all respects with recent testimonials, publications etc. and Bank Draft for Rs. 5/- (drawn in favour of the Registrar, Lucknow Universitty, payable at any Bank in Lucknow), is May 23, 1988.

Applications without Bank Draft will not be entertained. Candidates who are in service should send their applications through proper channel. Application forms to outstation candidates will be sent upto **May 16, 1988.**

B.M. Singh
REGISTRAR

OFFICE OF THE MEMBER-SECRETARY

MANIPUR AGRICULTURAL COLLEGE SOCIETY

IROISEMBA, IMPHAL-795 001

Advertisement No. Agri-College/I/2/79, Vol-5,

Dated : The 6th April '88.

Applications from intending candidates on plain paper giving full bio-data as per following items and accompanied with crossed Indian Postal Order for Rs. 7.50 (Rs. 1.90 in case of SC/ST candidates) drawn in favour of Member Secretary, Manipur Agricultural College Society, Iroisemba, Manipur are invited for the post of Principal of Manipur Agricultural College, Iroisemba in the Pay scale of Rs. 1500-60-1800-100-2000-125-2500/- (Pre-revi sed) plus Special Pay of Rs. 250/- p.m. with usual allowances as admissible under rule of the Manipur Agricultural College Society.

Qualifications

Essential : (1) Bachelor's Degree in Agriculture followed by Master's Degree in any branch of Agriculture Science.

(2) Doctorate Degree in any branch of Agriculture Science.

(3) At least 10 yrs experience in teaching/research and extension of which at least 3-yrs. in the rank of Professor or equivalent grade.

Desirable : (1) Intimate knowledge of educational system, functioning of Agricultural University/College and problems of Indian Agriculture.

(2) Evidence of initiative, leadership and capacity to plan, organise, co-ordinate and supervise the teaching, research and extension programme.

(3) Ability to conduct research work as evidenced by published paper in standard journals.

Age : Maximum age limit is 45 yrs. which is relaxable by 5 years for ST/SC candidates and 7 years for the employees who are working on regular basis under the Central or State Government or Recognised Institution/University/Agricultural Colleges.

ITEMS OF BIO-DATA TO BE FURNISHED : (1) Full Name (2) Permanent address (3) Present/Postal address (4) Father's Name (5) Father's permanent address (6) Nationality (7) Religion (8) Date of Birth and place of birth (9) Marital status (10) Whether belongs to SC/ST (certificate to be submitted if belongs to any of the said category) (11) Academic and Professional attainment (12) Experience (13) Research work as evidenced by published papers (copy to be enclosed) (14) Name and address of at least 2 (two) referees (not related to the candidates) (15) Any other information which the candidate wants to furnish but not covered by the above items.

Candidates who are willing to work on transfer or deputation or contract may also apply accordingly.

Higher start of pay can be given depending upon outstanding qualifications, experience and achievement. Benefits of Contributory Provident Fund, Leaves, House rent etc. should be available as per rules of the college.

Application complete in all respect alongwith attested copies of the certificates, marksheets, testimonials and publications must reach the office of the undersigned on or before 26th May, 1988.

Candidates who are called for interview will be given first class railway fare for to and fro journey from the place of origin and air fare from Calcutta/Gauhati to Imphal and back or actual expenses on fare, whichever is less.

S. Bapu Singh
MEMBER SECRETARY

MEERUT UNIVERSITY
MEERUT

Applications are invited for the following teaching posts. The application on prescribed form should reach the REGISTRAR, MEERUT UNIVERSITY: MEERUT-250005 latest by 15.6.88.

A. One Post of Reader in each subject
(1) Botany (Leave vacancy)

(2) Education (temporary likely to continue) in the grade Rs. 1200-50-1300-60-1900 (Revised grade Rs. 3700-125-4950-150-5700)

Minimum Qualifications

1. Good academic record with doctorate degree of equivalent published work and active engagement in research or innovation in teaching methods or production of teaching materials, and
2. Five years experience of teaching or research including at least three years as Lecturer or in an equivalent position, provided that the requirement contained in clause (2) may be relaxed in the case of a candidate who in the opinion of the selection committee, has outstanding research work at his credit.

B. One Post of Lecturer in eache subject. (1) Maths (Leave Vacancy likely to continue) (2) Russian Languages in the grade of Rs. 700-40-1100-50-1600 (Revised Grade Rs. 2200-75-2800-100-4000).

Minimum Qualifications

1. (i) A doctor's degree or research work of an equally high standard in the relevant subject; and

(ii) Consistently good academic record with First or High Second class Master's degree or an equivalent degree of a foreign University in the relevant subject.

2. Where the Selection Committee is of the view that the research work of candidate as evident either from his thesis or from his published work is of very high standard it may relax any of the qualifications prescribed in 1 (ii) above.

Note : Other things being equal, preference will be given to the Scheduled Caste/Tribe candidates who are considered fit. Such candidates should attach certificate to that effect from the District Magistrate.

Prescribed application form can be obtained by sending a request to the Dy. Registrar (Accounts), Meerut University, Meerut-250005 along with a self-addressed envelope of size 23x10 cms. and stamped worth Rs. 2-40 accompanied by a Bank Draft of Rs. 15/- in favour of the Finance Officer, Meerut University, Meerut or by Cash Payment of Rs. 15/- at the cash counter of the University.

I.P.Os or M.Os are not acceptable. While requesting for application form please mention "Application for Teaching Post" on the envelope.

The candidates who have already applied in reference to our previous advertisements for the post of lecturer in Maths and Russian Language need not apply again but they must request the Registrar, Meerut University, Meerut for confirmation of the receipt of their previous application in the University.

V.B. Bansal
REGISTRAR

It Pays To

Advertise

In

University News

NATIONAL METALLURGICAL LABORATORY

Council of Scientific & Industrial Research

JAMSHEDPUR-831007

NML Advertisement No. 2/88

Applications are invited to fill up the following vacancies at the National Metallurgical Laboratory (NML) Jamshedpur-831007, in the grades and disciplines mentioned against each. NML's objective is 'pursuit of excellence in research in the preparation and properties of engineering materials and the application of the results of the research for the benefit of the Society'. The applicant's background, commitment and career goals should commensurate with the achievement of NML's objectives.

The positions advertised here are in the divisions primarily committed to providing infrastructure and support for R&D work at NML. But Scientists recruited in these divisions, if capable, are encouraged to use 30% of their time in participating in R&D projects of NML.

I. Scientists

Category—I : Scientist EI/EII —1 Post

Scale of Pay : Rs. 3700-125-4700-150-5000 (EI) Rs. 4500-150-5700 (EII)

Scientist C —3 Posts

Scale of Pay : Rs. 3000-100-3500-125-4500

The above positions are available in the Sectional areas indicated against the following Infrastructural Divisions of the Laboratory :

1. **Construction & Maintenance:** Construction & Contracts/Maintenance of Buildings

2. **Instrumentation & Electronics :** Electronics/Instrumentation.

3. **Process & Project Engineering :** Project Engineering/Process Engineering/Workshop & Design.

Essential Qualifications

First Class Bachelor's Degree in Engineering (Electrical / Mechanical/ Instrumentation/Electronics/Metallurgy/ Chemical) with excellent achievement record in the respective areas of engineering operation with 12 years experience for Scientist EI/EII and 6 years for Scientist C. User knowledge of Computers is desirable.

OR

Post Graduate Degree in Engineering; excellent achievement record in the respective area of engineering operation with 10 years experience for EI/EII and 4 years for C. User knowledge of Computers is desirable.

Category—II : Scientist B —2 Posts

Scale of Pay : Rs. 2200-75-2800-EB-100-4000.

The above positions in the areas mentioned above under 1, 2 & 3 category-I

Essential Qualifications

First Class Bachelor's Degree in Engineering in the relevant areas with excellent achievement record. Post Graduate Degree in Engineering will be preferred. User knowledge of computers is desirable.

II. Scientist EI/EII —1 Post

Scale of Pay : Rs. 3700-125-4700-150-5000 (EI) Rs. 4500-150-5700 (EII)

Essential Qualifications

First Class Bachelor's Degree in Engineering / Architecture, preferable with M.B.A.

OR

M.Tech/ME/Ph.D. or equivalent/Post Graduate Degree in Industrial Design, preferably with M.B A./Diploma/Degree in Mass Communication. Should have flair for writing scientific & technical articles with 12 years' experience in editing, Publication and production of periodicals/journals/technical brochures and making of video films/models/ exhibits/posters.

Job Requirements

1. Preparation and production of Annual Reports, NML Technical Journals, NML News Letter, Technical Brochures/Leaflets.
2. Projection of R&D work and publicity through Press/Radio/TV/Video films/models/exhibits/Posters.
3. Preparation and production of video films describing the laboratory's project activicies.

The selected candidate will have to take charge of the Publication, Photography and Printing Section at NML.

III. Photographic Officer 'B' (Group-III (4) —1 Post

Stale of Pay : Rs. 2200-75-2800-EB-100-4000.

Essential Qualifications

Degree/Post Graduate Degree in Science/Photography or related fields with 8-10 years experience if Degree holder or 4-6 years' experience if Post-Graduate in the latest techniques in colour printing/developing/bloek making/ preparation of colour slides and preparation & production of video films.

Sould be able to take independent charge of a modern Photography Unit.

IV. Scientist C —1 Post

Scale of Pay : Rs. 3000-100-3500-125-4500

Essential Qualifications

First Class M.Sc./B.Tech. followed by MBA Degree with 6 years' experience in Project Management, Monitoring & Evaluation and in organising technical meetings.

V. Senior Security Officer —1 Posr

Scale of Pay : Rs. 3000-100-3500-125-4500

Essential Qualifications

A Degree in Science/Arts/Commerce from a recognised University with at least 10 years experience in a similar position in large industrial undertaking/ research laboratory / Police / Defence Services. Candidate should be conversant with modern methods of security and fire prevention. Should be able to handle fire arms, and should possess good physique and personality.

Age 35 years. Relaxable for departmental candidates and in the case of Scheduled Caste and Scheduled Tribe candidates and other specified categories as per Govt. of India instructions

Job Requirements

Will be responsible for Security, Watch and Ward, fire fighting arrangements of the Laboratory/Pilot Plants and its residential colonies; liiason with the local police authority and any other work of responsibility assigned by the Head of the Laboratory.

General Information

1. All posts carry usual allowances as admissible under the Central Government rules. **Upto 5 advance increments** (except for Sr. Security Officer) could be recommended by the Selection Committee for candidates with truely exceptional credentials and performance.
2. Application form for all posts are obtainable by post (Free of Cost) from the Administrative Officer, National Metallurgical Laboratory. Jamshedpur-831007, by sending Self-addressed and stamped envelope (Rs. 1.80 paise) of 28 x 13 cm. Completed application forms together with non-refundable application fee of Rs. 8.00 (Rs. 2.00 for Scheduled Caste/Scheduled Tribe candidates) in the form of **a Demand Draft on the State Bank of India, NML Branch, Jamshedpur, drawn in favour of the Director, National Metallurgical Laboratory, Jamshedpur,** alongwith attested copies of Certificates/Testimonials etc., should reach the Director, National Metallurgical Laborarory, Jamshedpur, on or before **1st June, 1988.**
3. Candidates applying for more than one post should submit separate applications alongwith the prescribed application fee specifying number of advertisement and post applied for.
4. Incomplete applications and those received after the last date will not be considered.
5. Details of the job description/requirements, salary, allowances, perks and scope of advance increments will be made available along with the Application Form on request including general conditions of service.

KOTA OPEN UNIVERSITY

KOTA (RAJASTHAN)

No. F2/KOU/Estt./Adv. Teaching/88/3/1078

Dated : 8.4.1988

Applications are invited for the following posts to reach the office of the Registrar on or before **May 15, 1988.**

1. Professor

Economics—one, Management—one, Political Science—one, Life Science—one, Physics—one, Commerce—one, Indian Tradition and Culture—one, Mathematics—one, Education—one.

Scale of Pay : Rs. 1500-60-1800-100-2000-125/2-2500.

2. Director

Regional Service & Study Centre—one, Material Production & Distribution—one, Planning & Development—one, Science and Technology—one.

Scale of Pay : Rs. 1500-60-1800-100-2000-125/2-2500.

3. Associate Professor
(Economics)—one.

Scale of Pay : Rs. 1200-50-1300-60-1900.

Those who have applied in response to advertisement No. KOU/Estt./Teaching/88/2 dated 1.3.1988, need not apply afresh.

In pursuance of the Court directive reservation for S.C./S.T. categories shall be made as per provisions of Section 10, of the Rajasthan University Teachers and Officers Act of 1974.

The revised U.G.C. grades are likely to be implemented soon.

Prescribed application form and information regarding prescribed minimum qualifications and other particulars may be obtained from the office of the Registrar, Kota Open University, Arora Bhawan. Opp. D.I.G. (Police) Office, Collectorate Circle, Kota at a price of Rs. 11/- (Rupees Eleven) only, personally or by sending self-addressed envelope of 23 x 10 cms. and crossed Postal Order(s) of Rs. 17/- (Rupees seventeen) only in the name of the Registrar, Kota Open University, Kota.

M.S. Khan
REGISTRAR

BANASTHALI VIDYAPITH

The Vidyapith invites applications for the following positions :

1. LIBRARIAN

Qualifications : (a) First or Second class M.Lib. Sc. or M.A./M.Sc./M.Com. with I/II B.Lib. Sc. or Diploma Lib.Sc.

(b) Minimum 10 years experience as Librarian or in responsible professional capacity in a University Library.

(c) Ph.D. Degree or equivalent research work in the relevant field.

(d) Training in Computerization/Information Technology desirable.

2. DEPUTY LIBRARIAN

Qualifications : As above with minimum experience of 7 years.

Grade : LIBRARIAN : 4500-150-5700-200-7300.
DEPUTY LIBRARIAN : 3700-125-4700-150-5300.

DEARNESS ALLOWANCE, CONTRIBUTORY PROVIDENT FUND, GRATUITY-CUM-INSURANCE AS PER VIDYAPITH RULES. RESIDENTIAL ACCOMMODATION AT SUBSIDIZED RATES.

Notes : 1. Workers must become habitual wearer of KHADI on appointment.

2. Selection Committee may recommend higher start in exceptional cases on merit.

3. The Vidyapith reserves the right to reduce or increase the number of vacancies or not to fill-up any post advertised.

Applications on prescribed forms (seven copies) must reach the Secretary, Banasthali Vidyapith, P.O. Banasthali Vidyapith (Rajasthan) 304022 by **31st May, 1988.** Forms can be obtained by sending self-addressed stamped envelope of 16 x 23 cm. size with Rs. 4.20 stamps or 9.20 stamps for registered post in favour of Secretary, Banasthali Vidyapith. However, for Librarian's post, Bio-data on plain paper (seven copies) may be sent to the Secretary in confidence. No. 4/88.

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University News

MONDAY, MAY 9, 1988 Rs. 1.5

Shri G. S. Randhawa, Vice-Chancellor, Guru Nanak Dev University receiving the Maulana Abul Kalam Azad Trophy from Shri R. Venkataraman, President of India.

COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH

ADVERTISEMENT No. 8/88

The Council proposes to appoint four Scientist 'G' at the Secretariat of the Council of Scientific & Industrial Research. The Council is a premier R&D organisation with 40 national laboratories situated all over the country. The CSIR Hqrs. overviews the major R&D areas and identifies and formulate specific R&D programmes as Missions/Thrust areas, arranges Technology Utilisation of the Expertise and Technical know-how developed by the laboratories; interaction with various agencies/departments to catalyze development plans to S&T and in general the promotion of Science. These are leadership positions and call for long years of experience, sound knowledge and expertise, maturity of judgement, initiative and organisational capabilities.

Qualifications & Experience : High academic qualifications in any discipline of Science or Engineering and at least 12 years experience in an R&D institution, university department, scientific agencies in identification, execution, planning, monitoring and co-ordination of research projects, utilisation of technological know-how and its marketing or technical forecasting and scientific collaboration with various departments and agencies, etc.

Job Requirements : The selected Scientists will be required to head any of the groups in the field of Research & Planning, Technology Development, or to provide necessary secretarial Scientific and Technical inputs to various high powered bodies and Advisory Boards, etc.

Age : Below 50 years, relaxable in deserving cases.

Scale : Rs. 5900-200-6700 plus allowances at Central Government rates.

This is a contractual appointment for a period of six years. A share in Institutional consultancy upto Rs. 50,000/- per year is allowed. The selected candidates are eligible for accommodation as per rules.

Scientists/Technologists interested may obtain two copies of the standard proforma for sending their curriculum vitae from the Joint Secretary (Admn.), CSIR, Rafi Marg, New Delhi-110001. The completed curriculum vitae proforma should reach this office on or before **20th June, 1988**.

UNIVERSITY
NEWS

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Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association.

Editor :

C. F. T. R. I., MYSO

UNIVERSITIES
Management in Non-Profit Organisations

S. D. Tripathi*

Non-profit organisations and service institutions, like Universities, hospitals,, research laboratories, health care institutions, clubs, professional and trade associations etc., have become an increasingly necessary concommitants of our social system. They are the main pillars of a modern civilization, embodying the values of developed societies. They have to perform, if society and economy are to function efficiently. While every citizen in the contemporary industrialised and urbanised societies depends for survival and growth on the performance of public service institutions; in every country there are ever-increasing complaints against bureaucracy and mismanagement in such institutions.

The present paper, based on the setting of university as a social organisation in particular, attempts to focus on the problems of management in non-profit organisations in general.

Universities, though non-profit organisations in nature, are as much institutions as are business firms and are equally in need of management. They all have people. who are designed to exercise the management function and who perform management jobs, even though they may not be called managers, but as registrars, administrators, directors, or some other titles. Like profit-oriented organisations, they have objectives and one of their important management functions is an efficient and effective use of available orgnisational resources—human, financial and material. In the process of managing, business, firms have developed a number of valuable tools for analysing effectiveness or otherwise of management—budgets, responsibility centres, cost analysis, m.b.o., linear programming, profitability analysis etc., most of which can be used or adopted for use in non-profit organisations like universities also.

Nonetheless, university, as a public service institution, is in a fundamentally different business. It is different in its purpose; it has different values; it needs different objectives; and it makes different contributions to the society. 'Management for performance' is one of the areas in which service institutions like universities differ significantly from business.

By and large, management of service institutions in general and universities in particular is mediocre. There are three popular explanations for the common failure of universities as service institutions to perform : (i) their objectives and results are intangible; (ii) their basic problem is not high cost, but lack of effectiveness/efficiency; and (iii) their managers are not businesslike and they need better men.

University as a non-profit organisation exists to render a service; its success is measured primarily by how well it renders this service. There are six possible reasons for the present deplorable state of affairs :

(i) The absence of the 'measure of efficiency'
(ii) The lack of competition
(iii) Politics
(iv) Weak Governing Boards

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*Professor, Department of Commerce & Business Management, Panjab University, Chandigarh-160 014.

(v) Traditions; and
(vi) Compensation system

While a profit-oriented organisation exists to earn a profit and its success is measured primarily by the amount of profit, in the case of non-profit organisations, service is a fuzzy concept. No one can establish a mathematical relationship between money spent and benefits received in the university system. The difficulty of defining objectives; of deciding on the resources required to reach objectives; and of measuring the efficiency and effectiveness with which the organisations perform to meet objectives, is the most serious management problem in a service organisation like universities. There is no foreseeable way of developing a control structure in a non-profit organisation that is as good as a structure that can be built around the profit measure. The unique problem is to develop better measures of output—what the organisation does and how well it does it.

Service institutions like universities are typically paid out of a budget allocation. 'Results' in a budget-based institution mean a bigger budget. Performance is the ability to maintain or to increase one's budget. And the budget is by definition, related not to the achievement of any goals, but to the intention of achieving the goals. The efficiency and cost control, however, much they are being preached are not really considered virtues in the budget-based institutions. The importance of a budget-based institution is measured essentially by the size of its budget and the size of its staff. Dependence on a budget allocation militates against setting priorities and concentrating efforts.

What is the alternative objective/purpose against which a non-profit service institution like university may be evaluated? Charles W. Eliot (President Harvard 1869-1909) saw the purpose of the university as that of 'educating a leadership group with a distinct style'. N.M. Butler (President Columbia 1902-1945) and W.R. Harper (President, Chicago 1892-1904) saw the function of the university as 'the systematic application of rational thought and analysis to the basic problems of modern society from education to economics, from domestic government to foreign affairs'. D C. Gilmen (President John Hopkins 1876-1901) maintained that 'university has to be viewed as the producer of advanced knowledge'. A.D. White (President Cornell 1868-1885) felt that 'university aimed at producing an educated people'. To make service institution perform, does not require 'great men'; it requires instead a 'system'. What has to be learned is to manage service institutions like universities for performance.

In many a non-profit organisations, particularly universities, the new client is not an opportunity; he is a problem. He is not a source of revenue; he is a source of headaches. Most universities have no motivation because they have no competition. Their revenues are allocated from a general stream of revenues of the state that is not tied to what they are doing, but is obtained by tax, levy or tribute. Furthermore, a typical service institution like university is endowed with monopoly power; the intended beneficiary usually has no choice.

Not all the public service organisations are political, but in those that are like universities, political considerations impede good management. Politics is inevitable, but there are opportunities to lessen the political influence in such organisations. One of the desirable ways is to reduce the number of officials elected and to increase the number of those who are appointed through a rotational system. In all organisations, the top man is responsible to some policy-making and review body. In universities, there are syndicates, Executive Councils or a body with a similar title. Its function is to set policy and to check up how well this policy is carried out. By and large, these bodies do not do a good job; generally they tend to rubber stamp the policies of the institution's to executive. They have neither the time nor competence to do otherwise.

The tradition that the head of an organisation should be a technical specialist disappeared from business companies early in the 20th century. It still persists in non-profit organisations like universities and results in selection of top men, who simply are not qualified to manage. They would be happier working at the specialities. A second influence of tradition is that these organisations have been slow to adopt modern management techniques. Non-profit organisations do differ from profit-oriented companies, but they have much in common also. They both have objectives and in both cases an important management function is to see to it that the organisation uses its resources efficiently and effectively.

The mere statement of the problem suggests the solution. Get rid of the traditional way of thinking about the management; recognise the management function for what it is; and use the modern management techniques that are available. This is the course much easier said dthanone. It requires education; it requires pressure and this is where the revitalised top management in the universities can play a key role.

Above all, a new breed of managers is needed in non-profit organisations like universities. In order to get them, the compensation system in the universities will have to be made more attractive to young people, who are choosing a career. The problems of measuring performance and the inevitable political considerations make the management job inherently more difficult in non-profit organisations. But the quality of management can be a lot better than it is now, with the adoption of modern management methods, increased competition, a new role of the top management bodies and greater public recognition of university autonomy. Non-profit organisations are now becoming more attractive and challenging place to work.

The set of interpersonal relationships which operates in the context of position, procedure, process, technology and social environment comprises of what is known as the organisational structure. The primary responsibility of educational manager is to improve the work of the people, he supervises; to improve the products (students); and to improve the team effort that makes the organisation successful. Through successful accomplishment of the above, he also improves himself. Accomplishment of an accountability concept in universities means that one must explicate clearly defined objectives and goals and have developed a management plan whereby goals can be reached in measurable ways. Universities have to adopt the strategy of organisational development as a response to change and as a complex educational strategy intended to change the beliefs, attitudes, values and structure of organisations so that they can better adopt new technologies, markets and challenges and the dizzying rate of change itself.

Non-profit organisations and service institutions in general and universities in particular have to prepare for management orientation, if they have to perform. Following steps are suggested for the purpose :

(i) Define nature and norms of their business;

(ii) Develop clear objectives and goals from the definition of functions;

(iii) Allot priorities of concentration like selection of targets, setting up of standards of performance, setting deadlines and developing accountability;

(iv) Define measures of performance;

(v) Use measurements as feedback by building self-control from results into the system; and

(vi) Install organised audit of objectives and results.

It should ever be kept in mind that university as a service organisation is the rational coordination of the activities of a number of people for the achievement of common explicit purpose or goal through division of labour and function and through hierarchy of authority and responsibility. □

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RESTRUCTURING B.COM. COURSE

P. K. Nair*

This paper is confined to the restructuring of course for B Com. Degree in the light of its existing structure as provided by the university of Bombay. The details of the syllabi of each paper or subject provided in the course will not be discussed; only the pattern or arrangement of papers/subjects will be examined. First, the three year integrated course leading to the degree of B.Com. is patterned as follows :

A student for the three year B.Com. Degree Course is required to offer **18 papers** from the following **five** groups of **subjects** :

1. Foundation Course Group — Two Papers (2)
2. Applied Component Group — Two Papers (2)
3. Commerce Discipline (Compulsory) — Ten Papers (10)
4. Ancillary Subjects — One Paper (1)
5. Special Group — Three Papers (3)

The subjects prescribed for the B.Com Degree Examination and the papers assigned to each subject (the first at First Year and the Second at Second Year) are as follows :

I Foundation Course Group—Two Papers

Subjects	Number of Papers
1. (a) Elements of Social and Economic Life in India or (b) History of Modern Civilization (Asia and Africa) Any one of the following : (i) China, (ii) Japan, (iii) South-East Asia (iv) Africa	1
2. (a) Scientific Methods; and (b) Science, Technology and Development.	1

II Applied Component Group —Two Papers

Twenty one subjects are prescribed for study under the Applied Component Group out of which a student will be required to offer any two subjects, one at Second Year and the other at Third Year. There is one paper in each subject. Some of these among 21 subjects are Export Management, Marketing Research, Advertising, Labour Welfare and Industrial Relations, Management of a Small Scale Industry, Computer System etc. Some other subjects are Panchayati Raj, Physical Culture including Yoga Studies, Non-formal Education etc.

III Commerce Discipline—(Compulsory)—Ten Papers

Subject	Number of Papers
1. Commerce and Market	2 1 at S.Y. B.Com. 1 at T.Y. B.Com.
2. Business Economics	2 1 at F.Y. B.Com. 1 at S.Y. B.Com.
3. Business Law	1 at S.Y. B.Com.
4. Mathematical & Statistical Techniques	1 at F.Y. B.Com.
5. Business Communication	1 at F.Y. B.Com.
6. Commercial Geography	1 at F.Y. B.Com.
7. Accounting and Financial Management Or Actuarial Science (General) Or Law (General)	1 at F.Y. B.Com. 1 at S.Y. B.Com.

IV Ancillary Subjects—One Paper

The following are the subjects prescribed for study under the Ancillary Group from which a student should choose **any one** at Third Year B.Com. There is one paper in each:

1. Human Ecology and Environment
2. Economic History of India : 1818-1951
3. One Foreign Language other than English or Literature in one Modern Indian Language including English
4. Regional Planning including Population study
5. Sociology
6. Psychology
7. Philosophy
8. Outlines of Government and Politics in India
9. Industrial Psychology
10. Economic System

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V Special Group

The following subjects—each subject having **three papers**—have been prescribed for **Specialisation** of which a student must choose any one at Third Year B.Com.

1. Financial Accounting and Auditing
2. Cost Accounting
3. Business Management
4. Company Secretarial Practice
5. Banking and Finance
6. Foreign Trade
7. Applied Economics
8. Actuarial Science
9. Rural Development
10. Law

The rationale of the above structure and subjects may be examined now. It seems Foundation Course group was introduced to bring into the scheme interdisciplinary approach in the sense that a commerce graduate should not be unaware of the socio-politic, economic and scientific--technological environments in which he is supposed to live and function. It seems that the first paper is supposed to make him patriotic and broad-minded if he had not yet already imbibed these qualities. The second paper is to train him in scientific reasoning and attitude so that he will be free from prejudice and obscurantism.

The intention of introducing Applied Component group is not clear. It was declared in workshops arranged for teaching these subjects that Applied Component was **not** the same as the Vocational Component. It has nothing to do with employment orientation. Applied Component was explained as applied or practical aspect of theory. One may wonder what is the applied aspect of Commerce which itself is the applied aspect of economic theory.

The Commerce Discipline group consists of some subjects like Business Law, Commercial Geography etc. How are such of these subjects within the commerce discipline itself ? They can be termed or grouped as even Ancillaries. On the other hand, in the Ancillary group there are subjects which are not directly "Supportive" to commerce (such as French, German, Marathi, Hindi etc).

Now let us discuss the syllabi of some of the subjects mentioned above.

Business Communication

Objectives of teaching this paper, as stated, are :

(a) to provide an intellectual interest to the study of Business Communication problems in the field of Commerce;

(b) to help the theoretical study with a discussion of practical situations in the business world; and

(c) to equip the students with an ability to have effective oral and written communication.

Some of the topics included are objectives, types, methods of Business Communication, Committees, public relations, interviews, Conferences, Communication log etc. The task of imparting education on these above topics has been assigned to lecturers in English literature. Naturally, the teacher who is basically trained in the grammar, idiom, usage and style and deeply immersed in literature as such is a fish out of water! She/he indeed deserves sympathy as she/he is likely to have no training in the technological instruments of communication like telephone, telex etc. This paper is supposed to help the students to improve their communication skill. But it has been a failure because the syllabus for this paper is a hotchpotch. Nothing is therein to develop command over usage of any language which is the essence of communication skill. One cannot communicate clearly and fluently without proficiency in language. Teaching of communication through any language without anything to do with grammar, usage and style is an exercise in futility. It may be clarified that it is not something pertaining to English alone. On the other hand, some other topics like writing application and bio-data, testimonials, letters of appointments and termination etc., can be taught by any teacher in English, but are thrust upon those students whose medium of instruction/learning are not English. They are not taught such topics in their own mother tongue. Is'nt it necessary to teach them how to apply for jobs in Marathi or Hindi ? Therefore, it is better to provide for a paper on English/Marathi/Hindi according to the medium of learning the student has opted for.

In the existing pattern, the papers in Economics are named "Business Economics". But it has been proved to be "Old wine of Economic Theory in the new bottle of Business". It is quite obvious the result cannot be different. Economics is indeed the study of ordinary "business of life". It seems the prefix "Business" was given to Economics in order to blunt the thoughtless criticism of Commerce/Accountancy Departments that the Commerce course was loaded with too much economics. But what is Commerce ? It is after all Applied Economics. Economics may be even called "Pure Theory of Commerce".

Some say "the contents of the papers taught in Business Economics are highly theory oriented and do not give adequate attention to applied aspects of economics". Will not theory orientation help develop analytical and abstract thinking capacity and contribute to intellectual discipline ? While "Commerce" which is itself "Applied Economics" is there, why should "Economics" be deprived or devoid of theoretical orientation ? What purpose will Commerce serve if it does not itself as such provide applied aspects of Economics ? Commerce is Applied Economics, is Business Economics, is Managerial Economics. Any adjective prefixed to Economics as theory should be avoided in the interest of clear thinking. The present paper I is overloaded with both **Micro and Macro** Economics and devoid of Indian experience. This paper should be revised as **Micro-Static Economic Theory** with reference to its application to the Indian Economy.

Foundation Course Paper-I—Social and Economic Life in India contains nothing new and challenging to the students of B.Com. as they would have studied most of the topics even in schools. Other subjects offered like Japan, China, South-East Asia, Africa are not popular with commerce students. This paper can be replaced by a **Vocational Component** paper. This **Vocational Component** is NOT Applied Component. Vocational Component requires that students should actually "Do" something. 100% marks should be assigned for practical experience. There is no need for any theory or classroom teaching. Every Saturday students should find time and situation to do something. Many things can be done even inside the College like running a canteen, a cooperative store, typing, teaching or helping to run the College office, interior decoration of the college itself. Some can work outside and bring certificates.

At present there is no paper/subject in Commerce taught at the F.Y. B Com. level. A paper on Business/Industrial Organisation can be introduced there.

At the Second year level, the present paper i.e. Business Economics Paper-II which has two sections viz 1. Public Finance ; and 2. International Economics may be replaced by **Macro—Comparative-Static Economic Theory** with reference to the Indian Economy.

The Commerce Paper-I (Business Planning) may be replaced by Principles of Management.

The Business Law paper may be broadened in content by including Company Secretary Practice, Company Law, MRTP Act. It can be renamed suitably as Commercial or Mercantile Law.

In the existing scheme, there is a paper on Applied Component group. If commerce itself is "Applied" branch of a discipline, there is no need for any "conspicuous" Applied Component group. We can accommodate the relevant subjects under the existing Applied Component group in Commerce main papers themselves.

Auditing may be taught at the Second year level instead of the existing Third year level.

Ancillary subjects are supportive or secondary to the main discipline. In the existing course, English, Sociology etc , which are themselves "Independent" disciplines, are treated as "ancillaries". Ancillaries to Economics and Commerce are Agriculture, Banking, Economic History, Economic Systems, Finance, Foreign trade, Transport, Labour and Trade Unionism etc. There is scope for providing one/two Ancillary papers at the S.Y. B.Com. level.

There can be a compulsory paper on Development Economics instead of the existing Ancillary paper. No Ancillary paper need be kept at the **Third Year** level.

The Commerce Paper—III may consist of two sections Marketing Research (the study of technique of finding out the Market) and Advertising (the study of technique of Capturing the Market). These two are at present optionals under the Applied Component Group.

Costing and Works Accounting should be compulsory subject.

Three papers may be assigned for "Specialisation" either in Financial Management or Business Management or Cost and Works Accounting or Company Secretary Practice or Banking or Insurance or Actuarial Science etc.

Any thought on restructuring of courses must start with answering the following questions : (1) What should be the specific objective of Commerce course at the B.Com Degree level ? It cannot be inculcation of patriotism, of pride in our cultural heritage, of social awareness etc., though they are important objectives from the broad view of educational policy. we should take it for granted that the students of B.Com course are already patriotic, proud of heritage and socially aware as they would have been conditioned at their schools. The objective can then be to put it crudely : **To provide** human resource material for making of Chartered Accountants, Cost and Works Accountants, Company Secretaries, Business and Industrial Managers, Entrepreneurs, Bankers, Insurers etc. To bring in idealistic objectives will be at the risk of clouding the basic and specific purpose. If we can consider "Career Courses" in C.A., C.W.A., C.S., M.B.A. etc. as specialisation, than B.Com. course should prepare the students for these courses. B.Com. Degree should be a "Gate-Way" into the same above specialisations.

The Second question then should be : What are the qualities such B.Com graduates should possess ? They are :

1. Communication Skill
2. Numerical Ability
3. Abstract (Analytical) Thinking Capacity
4. Manipulative or Organisational Faculty
5. Vocational Familiarity.

Having made some random observations, I suggest the pattern of course for the B.Com. Degree as follows :

PATTERN SUGGESTED

Objectives	First Year B.Com.	Second Year B.Com.	Third Year B.Com.
1. Communication Skill	1. English/Chosen Medium	1. Business/Commercial/ Mercantile Law including Secretarial Practice and MRTP Act	1. Marketing Research—Section-I Advertising-Section-II
2. Numerical Ability	2. Mathematics & Statistics.	2. Anciliary*-I	2. Cost & Works Accounting
3. Abstract (Analytical) Thinking Capacity.	3. Static-Micro Economics with reference to Indian Economy.	3. Comparative—Static Marco Economics with Ref. to Indian Economy	3. Dynamics of Economic Development with reference to India
4. Manipulative or organisational Faculty.	4. Industrial/Business Organisation.	4. Principles of Management Practice	4. Special Subject Paper-I
5. Basic	5. Accountancy	5. Auditing	5. Special Subject Paper-II
6. Vocational Familiarity	6. *(a) Computer Programming (b) Journalism (c) Hoteliery (d) Stock-broking and Financial Intermediary (e) Copy writing (f) Salesmanship (g) Estate Agency and Building Construction (h) Stenography (i) Market Data Collection (j) Retail Store running (k) Commercial Photography (l) Material Handling and Store-keeping (m) Interior Decoration (n) Teaching etc.	6. Anciliary* II *Any from the following : (a) Public Finance (b) International/Foreign Commerce Or World Trade—Export Management. (c) Economic Systems (d) Economic History (e) Cooperative Movement (f) Industrial Relations and Labour Welfare (g) Agriculture—Rural Economy (h) Industry (i) Transport (j) Computer System.	6. Special Subject Paper-III

WOMEN AND SOCIAL CHANGE

Basing his discourse on three recent news reports about women—An Indian Exhibition on 'Stri' at Moscow, proposal to debate 'Sati', and the call for creating conditions conducive to equality of sexes—Prof. K. Satchidananda Murty, Vice-Chairman, University Grants Commission vexed eloquent on the need to improve women's actual situation in India. He was all for condemning irrationality, inequality, intolerance and injustice wherever they may exist—in scriptures or religion as practised or in social organisation and customs, but the philosopher in him revolted against an indiscriminate fight against religion and/or tradition which was neither right nor rational. Prof. Murty was addressing the second convocation of Sri Padmavati Mahila Viswavidyalayam, Tirupati. Excerpts.

Convocation

I would like to discourse with reference to three current news items.

(1) An Indian exhibition on "Stri" (Woman) held recently at Moscow is reported to have dwelt on conceptions like woman as prakriti (nature), shakti (energy), kali (power) and matrika (universal mother), finally culminating in ardhanarisvara (male-female Lord). While such an exhibition must have been enlightening to those interested in Indian philosophico-religious ideas, profanation and secularisation of concepts like ardhanarisvara may not be justified, useful or relevant for contemporary purposes. It is true the great Yogi Siva 'established' Parvati in half his body (yamanirata dehardhaghatana, as the *Mahimnastotra*, 23, says). It is equally true that Lakshmi eternally resides in the chest of Narayana (Tadvakshasthalanityavasarasikam, as *Sri Venkatesvaraprapatti* says). Siva-Parvati and Lakshmi-Narayana are mutually inseparable. Like speech and intention, vagarthaviva, in the words of Kalidasa. But it is doubtful if these profound spiritual concepts could become instruments of social change. Conceptions like those of the Eternal Sophia or the Virgin-Mother are equally valuable in the spiritual realm. I recall C.G. Jung hailing the proclamation in 1950 of the Dogma of the Assumption of the Virgin as tne most important religious event since the Reformation. (*Antwort auf Hiob*, 1952). Similarly the Tantric conception of Shakti as Creative Dynamism, and the related techniques of autonomising sensual pleasure, attaining great happiness (mahasukha) and divinising the human body through erotic acts without consummation and physical effects, with the help of a woman who would throughout the process remain passive, impersonal and pure, appear to be based on certain metaphysical and psychological truths and experiences. But one wonders whether they may and can be justifiably and usefully pressed into service in the efforts to improve women's actual situation in India. Widespread and loose popularisation of such ideas and resort to occult practices claiming to be based on them led to the discredit of Hindu and Buddhist Tantras.

(2) A few days ago it was reported that a Swami of a Samaj had challenged the Head of a Math to a public debate on the question whether or not "Sati" has been sanctioned by the Hindu sacred scriptures. Long ago the best scholars have shown that the srutis and authoritative ancient smritis do not sanction any such thing. Reason and good sense, as well as the conscience of any contemporary civilized person, are unanimous in considering it cruel, barbarous and outrageous. Moreover, even if some dharmasastraic passage were to be produced to show that it has been sanctioned, the greatest smritis have long ago laid down what ought to be done in such cases. According to Manu, any 'dharma' which results in unhappiness and regress and horrifies the world must not be performed. (Dharmam capi asukhodarkam lokavikrushtameva ca, IV. 176.) Dharma is only that which is ever practised by the learned and the good who are free from aversion and attachment, as well as in accordance with reason. Nothing that makes one ashamed and anything which does not give one *tushti* (satisfaction/happiness/sense of fulfilment) cannot be dharma. (*Manu*, XII.35-7.) Moreover, Manu points out, dharmas differ from age to age. (Dharmah—nrunam yugahrasanurupatah, 1.85.) Yajnavalkya's view is identical. Even if something is 'dharma', i.e. even if it has been prescribed, what will not lead to heaven and what is opposed to civilised consensus or is

likely to be condemned by society, ought not to be performed. Interestingly, Vijnanesvara gives veal-offering to an honoured guest (madhuparkagovadhadikam), prescribed in some dharmasastra or by some tradition, as an example of a 'dharma' which ought not to be practised. Human sacrifice, "sati" etc. might have the sanction of some scripture or sastra, and might have been practised by some at some time. But as today they appear to us to be irrational, cruel, outrageous and barbarous, they should be eliminated from a civilised society. A public or private debate on their possible sastraic sanction has no practical relevance.

It is most gratifying that on November 16, 1987, in the Lok Sabha, Shri P.V. Narasimha Rao stated as follows :

> **Government do not want to know what Manu said or Shankaracharyas are saying on Sati. We are the modern Manus. We want to take only the progressive interpretation of Manu's teachings.**

This is a wise and courageous statement, which is important as it comes from a scholar-statesman in the cabinet, who knows deeply and loves intensely Indian tradition and has a critical and rational outlook.

(3) In a recent lecture an eminent retired judge of our highest court made a powerful plea for creating conditions necessary to achieve equality between the sexes guaranteed by the Constitution. I fully share his concern in this matter and join him and others in condemning irrationality, inequality, intolerance and injustice wherever they may exist—in scriptures and religion as practised or in social organisation and customs. But an indiscriminate fight against religion and/or tradition as such does not seem to be either right or rational.

There is much in our culture, tradition and classical literature which is glorious, and much that is outmoded, irrational, inequitous and irrelevant. We must critically appropriate the former, and fight with all our might against the latter. I would, for example, bring under the former the Nalopakhyana and Savitryupakhyana of the *Mahabharata*, Valmiki's 'great story of Sita' (Sitayah charitam mahat) and Ritadhvaja-Madalasa story of the *Markandeya Purana* under the former, while I would include in the latter category the story in the same Purana of that stupid pativrata wife of the leper Kaushika of Pratishtanapura, whom she daily used to carry on her shoulders to the house of a prostitute. As in other cultures, in ours too woman has been "empowered" as well as "enslaved", deified as well as chattelised.

Prof. K. Satchidananda Murty delivering the convocation address

One of the glories of Indian culture is its formulation of the Pativratya-Ekapatnivrata Ideal. A Pativrata is not a slave or sex-object. She is exclusively devoted to her husband (ananyabhava), is totally involved in him and his welfare (anuraktachetas). She shares his happiness and unhappiness; her mind does not think of anyone else in his place. In whatever situation he may be he is dear and desirable to her. He is her closest friend and nearest relative, as well as her collaborator in achieving dharma. She would never desire anything in which she cannot jointly participate along with him. But the necessary concomitant of this Ideal is that of Ekapatnivrata. He who follows the latter has firm and steadfast love for his wife (sthiranuraga) and would, moreover, care for her as a parent would for his offspring. She would be his companion for life and dearer to him than his own life (pranaih priyatara, pranebhyopi gariyasi). Without her he would find even heaven with its nymphs desolate. For him none else including his own parents would be dearer than her. He would not even think of enjoying any woman excepting his own wife; and if she were to predecease him he would remain chaste. (Tamrute...aham na bhokshye yoshitam kamcit, declared Ritadhwaja.) Sita of Valmiki claimed that Rama loved no one else more than her; nay, he did not even love anyone else equally ! (*Ramayana, Sundara Kanda*, XXXVI, 30.) According to Tiruvalluvar, Ekapatnivrata exemplifies 'noble manliness', 'real heroism' and perfect virtue.

According to the *Mahabharata* the wife is the husband's best friend (Suhridam vara) ordained by destiny (bharya daivakritah sakha). It further says : one's dear wife is greater than one's life (pranebhyopi gariyasi); she should be protected like one's mother and respected like one's elder sister. This Itihasa also asserts that as is oneself so is one's s on, and a daughter is equal to the son. (Putrena duhita sama). Everything must be given to a daughter; those parents, brothers, in-laws etc., who desire prosperity should treat girls/women with respect and affection. (pujyah lalayitavyah ca.) Women are indeed Lakshmis; he who desires prosperity must honour them. (Sriyah etah striyo nama, satkarya bhutimichhata.) (*Mahabharata*, Anusasanaparva, 45, 46.) At one place this work says with approval that Manu did not applaud the practice of women living with husbands whom they disliked; they can remarry, it implies. (same parva.)

Of course, the Fifth Veda has sections/passages which say that there is nothing more sinful than women, and that they are the root of all evil. (*Mahabharata, Anusasana Parva*, ch. 38.) A number of religious tracts and teachers have said that it is Kamini-Kanchana (woman and gold) which lead men astray, and that men should always avoid them. This is part of our "inglorious tradition", as are the caste system, untouchability, etc. But there is no culture or tradition in which there is not something 'inglorious'.

The composite ideal of Ekapatnivrata-Pativratya is nothing but the institution of marriage in which both the partners practise lifelong mutual mental and physical fidelity. I do not know why so great a thinker and poet with an encyclopaedic knowledge as Goethe declared "marriage is the greatest achievement of European culture", and why so eminent a scholar and well-read man as Denis de Rougemont has claimed marriage is "the institution most typical of European morals" ! Maybe Goethe did not come across characters other than those like Dushyanta in the Indian literature he was acquainted with, and de Rougemont knew well only about Tantrics from Eliade's work. While the classical Indian and European-Christian cultures acclaimed stable marriage as the ideal man-woman relationship, it is recognized as such by the Marxists also. "Monogamic unions", according to Engels, "provide the most sensible relation between the sexes in a society that has been emancipated from the restraint of money and class". Lenin strongly disapproved promiscuity and sexual lawlessness terming them "petit bourgeois". (de Rougemont, *Love in the Western World*, Rev. & Aug. Edn. with postscript, Princeton, 1983, pp. 287-3, 289.) Bela Kopeczi, a distinguished scholar who is also the Hungarian Minister of Culture and Education has pointed out, on the basis of empirical surveys, that the Family was identified as the preeminent value by Europeans in both the socialist and non-socialist countries, (his article in *The New Hungarian Quarterly*, Vol. XXVII, No. 104, 1986.) It is not surprising that Gorbachev and his colleagues as well as some American leaders are emphasizing ethics and values, especially, family integrity.

Before it came into contact with Europe, India never knew fatal passionate love *ever* unfulfilled—such as that found in the Tristan and Iseult romance, but given its final form in Wagner's *Tristan und Isolde*. It knew fickle sensuality of the type which found its most effective expression in Mozart's *Don Giovanni*. But it always condemned it. Its great ideal has been that embodied in upakhyanas like Nala-Damayanti and Savitri-Satyavan and Valmiki's great Sita charita. According to it, as a Sangam poet said, the spouses would have two bodies, but one soul and life. Let us not abandon it till a better one is found.

Present thinking in the world has gone much beyond what prevailed when Simone de Beauvoir published her *The Second Sex* and Beatty Friedan her *The Feminine Mystique*. As you will admit, the first was truly the first feminist and with the second began Women's Liberation Movement in USA. There is no one dimensional oppression in marriage as de Beauvoir thought, if marriage is understood in the way indicated above. In her very recent second book *The Second Stage*, Freidan is pleading for "the articulation of the values of family and life itself", and now thinks feminism does not require the denial of difference between women and men. Germaine Greer is doing her best to show that old Eastern societies have not marginalised women, that feminist movements (through competition with men, etc.) and governments (through family planning, etc.) might lead to weakening of family ties, loneliness of women, rejection of children, and destruction of the balance among individual needs, rights and freedom, societal natural laws and the future of civilization. (*Sex and Identity)* Lastly, the myth of women ever having had a monopoly on compassion and peace has been effectively exploded by Jean Bethke Elshtain. (*Women and War*).

It is heartening to remember that : (a) Our Sixth Five Year Plan has a chapter on "Women and Development" and the HRD Ministry has drawn up a new Perspective Plan for Women, 1988-2000, and sent it to the Planning Commission. (b) A National Committee on Women with the Prime Minister at its head has been constituted by the government. (c) The University Grants Commission has activised implementation of its programme of the Development of Women's Studies in Universities and Colleges. ☐

Higher Education Relevance and Quality

The Department of Economics of the University of Bombay recently organised a Symposium on "Higher Education in the Context of the New Education Policy" under the auspices of Department's University Leadership Programme and Economics of Education Unit. The Symposium was conducted in three Sessions : (i) Planning and Administration of Higher Education, (ii) Analytical Teaching of Indian Economy, and (iii) Role of Teacher in the Context of the New Education Policy. Over 40 teachers in Economics from the colleges/University actively participated in the discussions.

In their paper "Planning and Administration of Higher Education : The Challenge of Change". R. Bharadwaj and K.K. Balachandran analysed the apportionment of higher educational expenditure between different objects or items from the point of view of qualitative improvement. The deleterious effect of the current pattern of expenditure on real academic activities was highlighted. It was also observed that higher education in India was reeling under the mounting pressure of deepening resource crunch, and a threatening consequence of this over time appeared to be stifling of objective or independent knowledge-generating activities especially in universities. The allocations for academic activities like teaching, equipment and appliances, laboratories, libraries, etc. have naturally to be high, but these have declined over the years.

Jacob P. Verghese in his paper 'Administration of Higher Education and the idea of Autonomy' pointed out the possible dangers of granting autonomy to a few colleges on the basis of their academic reputation and sound financial position, leaving their less fortunate sister colleges to doom. He suggested instead small autonomous 'clusters' of colleges, outstanding and poor together, in a particular locality of a big university. He also proposed state-level counterpart of the UGC to supervise and regulate these clusters.

The second session concentrated on two papers : (a) "Analytical Approach to Teaching Indian Economy at B A. and M A. levels" by S.P. Padgaonkar; and (b) "Teaching of the Indian Economy : Analytically" by A.M. Pethe and A.V. Karnik. While Padgaonkar's paper examined the need for an analytical approach to teaching Indian Economy, Pethe and Karnik's paper contended with an operational definition of 'analytical teaching. It was pointed out that a change to analytical teaching of Indian Economy will require a concomitant strengthening of the quantitative apparatus of students, preparation of teaching materials, changes in evaluation procedures, etc.

Session III took up papers on (a) "The Role of Teachers in the Context of the New Education Policy" by S.M. Israney and L.H. Bagalkot, and (b) "Role of a Teacher and the New Education Policy" by (Mrs.) S.A. Nagpurkar. Israney and Bagalkot emphasised the need for active steps to upgrade the teaching-learning process with a proper measure of research guided by suitable methods of teaching. They felt there was scope under the New Education Policy for creating a conducive atmosphere, with proper incentives, for better learning and teaching. Job satisfaction is more important than anything else, and all efforts should be made to reduce intellectual alienation and narrow the gap between education and knowledge, and between educators and qualifiers, they stressed.

(Mrs.) Nagpurkar drew attention to the role of women who were coming forward in greater numbers to join the teaching profession. She also emphasised the need for better interaction among teachers through Seminars, debates, discussions, etc. Teachers' associations should take active interest in faculty development programmes and not depend too much on government agencies for this purpose, she observed.

The Symposium was marked by lively discussion and the deliberations constitute an excellent agenda for starting of further action in making the teaching-learning process of Economic Science at the University level both creative and contributive.

Superconductivity at PG Level

Prof. Yash Pal, Chairman, University Grants Commission (UGC) said in New Delhi that the Commission is considering introduction of a special paper on High Temperature Superconductivity (HTSC) at the postgraduate level as well as making changes in the curricula of the MSc and BSc students. Besides the UGC is also thinking of setting up an interuniversity centre for research in superconductivity. He was addressing a meeting of eminent scientists and coordinators of superconductivity programmes of over 25 universities of the country where some research is presently going on.

Prof. Yashpal said besides changes in curricula at the MSc and BSc level, the universities should also make an effort at planning new experiments for the physics and chemistry students which would not only interest but involve them in this area of research. He said the universities must think of setting up of special facilities or adding to the existing ones which would in turn help other institutions which did not have such facilities.

Prof. Narlikar of the National Physical Laboratory said some of the proposals for research that were made by various universities were excellent. He referred to the IIT Kharagpur, Pune, Banaras, Rajasthan, Goa and Madras universities where interesting work was going on. He said the presentations justified that the work must be encouraged and suggested that the university people visit some of the national laboratories and develop interaction to keep abreast of the latest research going on.

The UGC has so far supported research in 27 universities to the tune of Rs. 220 lakh besides constituting a standing committee on superconductivity.

Participants in the meeting included Prof. C.N.R. Rao, Prof. R. Vijayaraghavan, Prof. K.L. Chopra, Dr. A.V. Narliker and Prof. A.P. B. Sinha.

Multidisciplinary Symposium on Gerontology

Jawaharlal Nehru University proposes to organise an All-India Symposium on Biological, Medical and Social Gerontology from December 19 to 22, 1988 at the School of Life Sciences at New Delhi to coincide with the IVth National Meeting of the Association of Gerontology (India) (AGI). The Symposium will concentrate on the current researches (academic and applied) in the field of ageing (Gerontology-Senescence). Intended to make a positive attempt to integrate new knowledge about ageing and promote greater communication between the community of individuals engaged in various aspects of ageing research in the country, the symposium will focus on applications of emerging knowledge and understanding in the field of gerontology for the benefit of human society.

The AGI meeting would provide a forum where academic excellence and practical measures can complement each other, and will also make an attempt to make general public aware of the potential of ageing research : to increase the span of healthy productive life and to minimize the social, biological and clinical problems of age (senescence).

Further details about the symposium can be had from Professor Rameshwar Singh, School of Life Sciences, Jawaharlal Nehru University, New Mehrauli Road, New Delhi-110067.

Orientation Course for Teachers

Prof. S.C. Dube, Chairman, M.P. Uchcha Shiksha Anudan Ayog, inaugurated the first Orientation Course organised by the Academic Staff College of the Dr. Harisingh Gour Vishwavidyalaya at Sagar recently. He said that the Academic Staff Colleges had been conceptualised to provide a forum where teachers with different backgrounds and various age groups could interact with each other. He pleaded that such orientation programmes should not be reduced to one-man monologues. Instead, these should help raise significant questions, evolve suitable alternatives, and place relevant issues in proper perspective.

He called upon the teachers to link theoretical knowledge with realities of life around them so that the educational system could become accountable and enriching. The objective of education, specially higher education, should not only be to impart knowledge but to make students think, he added. In this context, he suggested that audio-visual aids could also be employed.

Earlier, Prof. P.D. Hajela, Vice-Chancellor, who presided, pointed out the need to make universities research-intensive. He regretted that bodies of higher learning are increasingly becoming lesson-imparting institutes. He hoped that the Academic Staff Colleges would orient the teachers to make research productive and socially meaningful.

Over 30 university and college teachers are attending this month-long course.

Courses in Atmospheric Sciences

The Center for Atmospheric Sciences (CAS) of the Indian Institute of Science, Bangalore offers postgraduate courses on Introductio to meteorology; Geophysical flui dynamics; Radiative transfer in th atmosphere; Monsoon dynamic Numerical weather prediction; Convection and clouds; Atmospher turbulence; and Meteorologic instruments

It conducts post-M.Sc. cours in atmospheric sciences, leading M.Sc. (Engg.) and Ph.D. degrees the Indian Institute of Scien The following courses are also p posed to be offered : Atmosphe thermodynamics; General Circu tion and climate : observation and theory; Waves and instabilities in the atmosphere; Climate modelling; Large scale variability of oceans and atmosphere; Turbulent diffusion in the atmosphere; Statistical methods in meteorology; Stochastic modelling and prediction; and Satellite meteorology.

Problems of Development

The Western Regional Centre of the ICSSR and the Political Science Department of Goa University organized a two-day seminar on "Problems of Development with special reference to Western India at the University Campus Bambolim. The Seminar discussed themes ranging from the concept and theories of development to such macro themes as Bureaucracy and Development and Poverty Alleviation Programmes, Study of Village Development in Goa, Development of Scheduled Castes & Tribes in Goa, and the Employment Guarantee Scheme in Maharashtra. Prof. Adi H. Doctor, Head of Political Science Department of Goa University, directed the Seminar.

Pedagogical Perspectives on Literary Language

A 2-day seminar an 'Pedagogic Perspectives on Literary Language' was recently organised by Dakshina Bharat Hindi Prachar Sabha at Hyderabad. The purpose of the seminar was to propose the models of pedagogic perspectives of aesthetics aspect of the literary language.

Dr. C.B. Rawat, Professor of the P.G. Complex, revealed the problems of literary and non-literary languages while describing their contrasts. Prof. Vijendranarayana Singh from the University of Hyderabad discussed the mutual relations of Aesthetics and Literary languages. Dr. K.K. Goswami from C.H.I., Delhi opined that it was not proper to state that language was merely a medium of literary language.

Prof. U.N. Singh of the University of Hyderabad stressed on the possibilities of literary planning by language planning. Prof. Ch. Rama Rao of Telugu University proposed that while teaching the literary language the ideological background should also be brought out.

Sri V. Anjaneya Sarma, Registrar of the P G. complex, stressed the need of discovering various models of the pedagogical perspectives on literary language.

Festival of India Participants' Workshop

Department of Youth Affairs and Sports, Government of India will organise a two day Workshop on May 9-10, 1988 at the Youth Hostel Association of India, New Delhi. Group Leaders and Participants in the Youth Programmes of the Festival of India held in the USSR have been invited to the Workshop.

Youth Programmes of the Festival of India were held at Moscow, Leningrad and Tashkent during July-September, 1987 in which about 500 youth contingent, including 108 university youth from 15 universities participated.

The participants at the Workshop would share their experiences and prepare their report at the end of the deliberations. A detailed report would be presented by Group Leaders of their respective groups. The Department has prepared a questionnaire to facilitate collection of information from various participants.

Gujarat Vidyapith Heralds Literacy Campaign

Adult Literacy Resource Centre of the Gujarat Vidyapith has launched a 'Literacy Campaign' with a target of covering 5 lakh illiterate dults of 15-35 age group through active involvement of 1000 voluntary agencies and one lakh volunteers. The campaign named 'Saksharata Abhiyan' will last from May 1 to 15th June, 1988. Every day each volunteer will go to the house of five illiterates and help them learn themselves through literacy kits. Five lakh literacy kits have been printed for them and are being delivered to 1000 villages. Realising the urgency of evolving low-cost reading material, the Gujarat Vidyapith have developed 25 lesson literacy kits of 25 loose sheets with inbuilt exercises. This costs only Rs. 2 per kit.

The campaign will be followed up by opening 1500 Jan Shikshan Centres in 1000 villages that participate in Saksharata Abhiyan.

Transportation Engineering Centre

Ministry of Human Resource Development, Govt. of India, has sanctioned a grant of Rs 10 lacs for setting up a Centre in Transportation Engineering at Thapar Institute of Engineering and Technology, Patiala. Preparations are afoot to set up the Centre. The Centre will be expected to develop manpower and conduct research in the area of Transportation Engineering.

News from Agril. Varsities

Horticultural Development in Marathwada Region

The Marathwada Agricultural University, Parbhani organised, in collaboration with the Hexamar Research and Development Foundation, Bombay, a seminar on Horticultural Development in Marathwada Region on 1-2 April, 1988 at Fruit Research Station, Himayat Bagh, Aurangabad. The objective of the seminar was to identify the problems of Horticultural Development of the region and to formulate a strategy of horticultural research and development. Dr. K.L. Chadha, Deputy Director General, Horticulture, I.C.A.R., New Delhi, inaugurated the seminar while Dr. P.V. Salvi, Vice-Chancellor, presided.

Dr. K L. Chadha, in his inaugural address, emphasised the need of research in horticultural crops as good potential existed in the region. He also assured financial support from I.C.A.R. Dr. P.V. Salvi observed that the region had very good climate, soils and local plant types available for development of the region. He emphasised the need of immediate research on survey of local mango types available in the region and strengthening of the nursery activity for the supply of plant material on large scale to the cultivators of Marathwada.

Seven lead papers on fruit growing, vegetables, floriculture, fruit and vegetable preservation, Dryland Horticulture, Nursery and Medicinal Plants were presented at the seminar which was attended by over 300 delegates from Andhra Pradesh, Karnataka and agricultural universities of the state.

Industrial Uses of Sorghum

The College of Agricultural Technology of the Marathwada Agricultural University has conducted research on sorghum processing to produce value added industrial products. A high quality starch can be produced from hybrid sorghum and the sorghum starch can be converted to sweetners like liquid glucose. I.C.A.R. sponsored a scheme on malting of sorghum. Under the scheme the process has been standardised for malt production and utilization of malt in weaning foods, bakery products and beer.

Processes have also been developed for production of sorghum flakes and sorghum pops for use in snack industry. Pearled/polished sorghum can be utilized in production of various sorghum products.

Merist Culture Techniques

The Indian Council of Agricultural Research (ICAR) has sanctioned to the Kerala Agricultural University a research project on 'Standardisation of tissue/apical meristem culture techniques in horticultural crops of Kerala', with assistance from the International Co-operation and Development, USDA. The Project, with a total outlay of Rs. 15.661 lakhs for a period of three years, will be implemented at the Department of Horticulture, College of Agriculture, Vellayani. Dr. S. Ramachandran Nair, Professor and Head, Department of Horticulture and Dr. N. Mohanakumaran, Associate Director of Research (Southern Region) will be the Principal Investigators. Under the project, a tissue culture laboratory will be established in order to standardise micropropagation techniques in cashew and nutmeg.

Sports News

Maulana Azad Trophy for Guru Nanak Varsity

Mr. R. Venkataraman, President of India, awarded the "MAULANA ABUL KALAM AZAD TROPHY" to the Guru Nanak Dev University, Amritsar for the year 1986-87 on April 19, 1988. Mr. G.S. Randhawa, Vice-Chancellor of the University received the coveted trophy on behalf of distinguished sportsmen/sportswomen of the University. Guru Nanak Dev University has won this trophy nine times

Maulana Abul Kalam Azad Trophy, the highest sports award in India, was instituted by the Ministry of Education, Government of India in 1956-57 and is awarded each year by the President of India to the Vice-Chancellor of that University which attains maximum points in Inter-University, National and International competitions.

During the year 1986-87, the Guru Nanak Dev University won seven All India Inter-University Championships in Gymnastics (Men), Cross Country (Women), Weight Lifting, Hockey (Women), Kabaddi (Women), Kabaddi (Men) and Best Physique. It was runners-up in six disciplines in Cross-Country (Men), Athletics (Women), Basketball (Women) and Football (Men) and was third in Wrestling and Kho-Kho (Women).

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertations as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Mishra, Pawan Kumar. *Distribution theory*. BHU. Dr. R.S. Pathak, Department of Mathematics, Banaras Hindu University, Varanasi.

2. Rajoriya, Vinod Kumar. *Some results in the fixed point theory*. HS Gour. Dr. R.K. Jain, Department of Mathematics, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

Statistics

1. Singh, Khundom Kumarchand. *The applications of neighbour type designs, their analysis and methods of constructions*. Devi Ahilya. Dr. Bhagwandas, Prof. and Head, School of Statistics, Vigyan Bhawan, Khandwa Road, Indore.

Physics

1. Awana, Veer Pal Singh. *Interfacial phenomena in liquid crystals*. BHU. Prof. Y. Singh, Department of Physics, Banaras Hindu University, Varanasi.

2. Bose, Subrata. *Studies on fibre optics and microstrip antenna*. BHU. Prof. K.K. Dey, Department of Physics, Banaras Hindu University, Varanasi.

3. Chandra Bhushan. *Density functional theory of freezing*. BHU. Prof. Y. Singh, Department of Physics, Banaras Hindu University, Varanasi.

4. Jaya Raj, M.E. *Study of some metastable alloy phases produced by rapid solidification*. Devi Ahilya. Dr. Ajay Gupta, Reader, School of Physics, Vigyan Bhawan, Indore and Dr. K. Rama Reddy, Prof. Department of Physics, Osmania University, Hyderabad.

5. Kalyanasundaram, V.N. *Experimental high energy physics*. BHU. Prof. S.K. Tuli, Department of Physics, Banaras Hindu University, Varanasi.

6 Laha, Tripti. *Interface properties of Si-SiO_2 system*. BHU. Prof. R.S Srivastava, Department of Physics, Banaras Hindu University, Varanasi.

7. Mehta, Subhash Chandra. *X-ray spectroscopic studies of some rare earths and their compounds*. Devi Ahilya. Dr. S.N. Gupta, Prof., Department of Physics, Vikram University, Ujjain.

8. Mohan Das, M.V. *Solidification composites*. Kerala. Dr. Elezabeth Roschen Sasikumar, Regional Research Laboratory, Pappanamcode, Trivandrum.

9. Nagar, Vivek Chandra. *Phase transition and interfacial phenomena in liquid crystals*. BHU. Dr. Shri Singh, Department of Physics, Banaras Hindu University, Varanasi.

10. Pandey, Shreekant Tribhuwan Nath. *Some studies on determination of the structural parameters from XFS* Devi Ahilya. Dr. K.P. Joshi, Prof., Department of Physics, Vigyan Bhawan, Indore.

11. Prasada Rao, Korrapati Chandra Sekhara Vara. *Phase*

transition in liquid crystals. BHU. Prof. Y. Singh. Department of Physics, Banaras Hindu University, Varanasi.

12. Ramesh, Gandham. *Study of materials under low temperature.* BHU. Prof. O.N. Srivastava, Department of Physics, Banaras, Hindu University, Varanasi.

13. Ranveer. *Semi-conductor electrolyte interface and solar energy conversion.* BHU. Prof. S. Chandra, Department of Physics, Banaras Hindu University, Varanasi.

14. Sabitha, Pagadala. *Synthesis, characterisation and stability of amorphous materials.* BHU. Dr. R.S. Tiwari, Department of Physics, Banaras Hindu University, Varanasi.

15. Safdar—Habibi. *Study of stability and properties of some transition metal metalloid (TM-M) metallic glasses.* Devi Ahilya. Dr. Ajay Gupta, Reader, School of Physics, Vigyan Bhawan, Indore.

16. Sharma, R.K. *Studies on mercury cadmium telluride.* BHU. Dr. B.B. Sharma, Solid State Physics Laboratory, Lucknow Road, Delhi and Prof. S. Chandra, Department of Physics, Banaras Hindu University, Varanasi.

17, Singh, Arun Kumar. *Atomic vibrations in hexagonal transition metals.* BHU. Dr. S S. Kushwaha, Department of Physics, Banaras Hindu University, Varanasi.

18. Singh, Veer Pal. *A study regarding charged particle-atom (molecule) collisions.* BHU. Dr. D.N. Tripathi, Department of Physics, Banaras Hindu University, Varanasi.

19. Srivastava, Rajendra. *Studies on biomolecular structure.* BHU. Dr. P.C. Mishra, Department of Physics, Banaras Hindu University, Varanasi.

20. Ullas, G. *Molecular spectroscopy.* BHU. Dr. S.B. Rai, Department of Physics, Banaras Hindu University, Varanasi.

21. Verma, Kiran Kumar. *Investigation of energy materials.* BHU. Dr. R.G. Tiwari, Department of Physics, Banaras Hindu University, Varanasi and Prof. O.N. Srivastava, Department of Physics, Banaras Hindu University, Varanasi.

Chemistry

1. George, Santhi. *Chemistry of organic eutectic and addition complexes.* BHU. Dr. U.S. Rai, Department of Chemistry, Banaras Hindu University, Varanasi.

Earth Sciences

1. Mishra, Devesh Chandra. *Micropalaeontology.* BHU. Dr. Jagdish Pandey, Chief Geologist, Oil and Natural Gas Commission, Dehradun and Prof. M.S. Srinivasan, Department of Geology, Banaras Hindu University, Varanasi.

2. Mukherjee, Jiteswar. *Petrology and economic aspects of the pegmatites and associated rocks of pegmatites, Bihar, India.* BHU. Dr. Arup Deb, Department of Geology, Banaras Hindu University, Varanasi.

3. Singh, Pramod. *Invertebrate palaeontology and stratigraphy.* BHU. Dr. A.K. Jaitly, Department of Geology, Banaras Hindu University, Varanasi.

4. Singh, Ram Autar. *Structure and tectonics.* BHU. Dr. V.K. Gairola, Department of Geology, Banaras Hindu University, Varanasi.

5. Verma, Hargun. *Invertebrate palaeontology and stratigraphy.* BHU. Dr. A.K. Jaitly, Department of Geology, Banaras Hindu University, Varanasi.

Engineering & Technology

1. Anoop Kumar. *Fluid flow and heat transfer.* BHU. Dr. S.N. Gupta, Department of Mechanical Engineering, Banaras Hindu University, Varanasi.

2. Chaurasia, Bhanu Shanker. *Ion theory.* BHU. Prof. Ravi Prakash, Department of Bio-Medical Engineering, Banaras Hindu University, Varanasi.

3. Ganguly, Alack Kumar. *Electrical power transmission and distribution.* BHU. Dr. A.K. Mitra, Director (R & D), Electricity. Research Institute, UP State Electricity Board, Lucknow and Prof. V.S. Subba Rao, Department of Electrical Engineering, Banaras Hindu University, Varanasi.

4. Gupta, Ajai Kumar. *Vibration of geared systems* BHU. Prof. S. Kishore, Department of Mechanical Engineering, Banaras Hindu University, Varanasi.

5. Malick, M.H. *Study of holistic approach to production management and human resource interface for sustained growth in Indian engineering industry.* Delhi. Prof. Rajnish Prakash, Department of Mechanical Engineering, Delhi College of Engineering, Delhi.

6. Mehta, Arun Shanker. *Squeeze casting of aluminium alloys.* BHU. Dr. B. Chatterji, Deputy General Manager, Foundary and Forge Division, HAL, Bangalore and Prof. P. Ramachandra Rao, Department of Materials Science, Banaras Hindu University, Varanasi.

7. Mehta, Sujatha. *Deformation behaviour of aluminium alloys.* BHU. Dr. P.S Babu Ramani, Manager, Hindustan Aeronautics Limited, Bangalore and Prof. V.V. Kutumba Rao, Department of Metallurgical Engineering, Banaras Hindu University, Varanasi.

8. Paliwal, Hirendra Kumar. *Fluid flow and heat transfer.* BHU. Dr. S.N. Gupta, Department of Mechanical Engineering, Banaras Hindu University, Varanasi.

9. Patel, Arun Kumar. *Photo-chemical reaction process.* BHU. Dr. P.N. Tewari, Department of Chemical Engineering, Banaras Hindu University, Varanasi.

10. Radhakrishnan, S. *Biomedical telemetry.* BHU. Prof. Ravi Prakash, Department of Biomedical Engineering, Banaras Hindu University, Varanasi.

11. Rajagopalachary, T. *Modelling of metal working processes.* BHU. Prof. V.V. Kutumba Rao, Department of Metallurgical Engineering, Banaras Hindu University, Varanasi.

12. Ranganath, S. *Preparation and evaluation of novel composites.* BAU. Dr. J. Subramanyam, Defence Metallurgical Research Laboratory, Hyderabad and Prof. V.B. Tare, Department of Metallurgical Engineering, Banaras Hindu University, Varanasi.

13. Singh, Girish Kumar. *Optimum design of 3-phase armature wdg. for effective utilisation of supply wave form.* BHU. Prof. M. Bhattacharya, Department of Electrical Engineering, Banaras Hindu University, Varanasi.

14. Singh, Vinod Kumar. *Adaptive control strategy in power-frequency control design.* BHU. Dr. D.S. Chauhan, Department of Electrical Engineering, Banaras Hindu University, Varanasi.

15. Singhal, Dhirendra. *Structural Engineering.* BHU. Dr. Ramji Agrawal, Department of Civil Engineering, Banaras Hindu University, Varanasi.

16. Sinha, Shirish Kumar. *Mathematical modelling and computer analysis of EHV and UHV transmission grounding systems.* BHU. Dr. D.S. Chauhan, Department of Electrical Engineering, Banaras Hindu University, Varanasi.

17. Sinha, Sunil Kumar. *On-line system identification methods*. BHU. Dr. T. Nagaraja, Department of Electrical Engineering, Banaras Hindu University, Varanasi.

18. Syed Akhlaq Ahmad *Absorption of SO_2 gas in reacting and non-reacting*. BHU. Dr. V. Krishnan, Department of Chemical Engineering, Banaras Hindu University, Varanasi.

BIOLOGICAL SCIENCES

Biochemistry

1. Agrawal, Sunita. *Molecular mechanism of various phenomena associated with histone H 1*. BHU. Dr Z. Ali, Department of Biochemistry, Banaras Hindu University, Varanasi.

2. Bhalerao, Anjali. *Stress on immunity*. BHU. Prof. S. S. Dubey, Department of Biochemistry, Banaras Hindu University, Varanasi and Prof. P. C. Sen, Department of Microbiology, Banaras Hindu University, Varanasi.

3. Dash, Debabrata. *Biochemical changes in platelets in hyper aggreable condition like ischaemic heart disease*. BHU. Dr. G.N.K. Rao, Department of Biochemistry, Banaras Hindu University, Varanasi.

4. De, Amitabha. *Physico chemical studies of ribosome structure and function*. BHU. Prof. M. Charavorty, Department of Biochemistry. Banaras Hindu University, Varanasi.

5. Dey, Debendra Nath. *Mechanism of translocation in protein synthesis*. BHU. Prof. M. Chakravorty, Department of Biochemistry, Banaras Hindu University, Varanasi.

6. Mukherjee, Nivedita. *Use of recombinant DNA techniques in the study of host virus interaction*. BHU. Prof. M. Chakravorty. Department of Biochemistry, Banaras Hindu University, Varanasi.

7. Pandey, Bindu. *Molecular characterization of bacteriophage MB 78*. BHU. Prof. M. Chakravorty, Department of Biochemistry, Banaras Hindu University, Varanasi.

8. Sasane, Grace, Anant. *Cloning, sequencing and expression of genes of bacteriophage MB78*. BHU. Prof. M. Chakravorty, Department of Biochemistry, Banaras Hindu University, Varanasi.

9. Srivastava, Supta. *Effect of use of Terminalia arjuna on lipid profile and related enzymes in ischaemic heart disease*. BHU. Prof. S. S. Dubey, Department of Biochemistry and Medicine, Banaras Hindu University, Varanasi; Prof. P. N. Somani, Department of Biochemistry and Medicine, Banaras Hindu University, Varanasi and Prof. K. N. Udupa, Department of Biochemistry and Medicine, Banaras Hindu University, Varanasi.

10. Tikoo, Kul Bhushan. *Effect of sex hormones on chromatin structure in situ*. BHU. Dr. Ziledar Ali, Department of Biochemistry, Banaras Hindu University, Varanasi.

Botany

1. John, T. *Evaluation of the genotoxic potential and cytogenetic effects of spices and condiments*. Kerala. Dr. Susan Abraham, Prof. Department of Botany, University of Kerala, Trivandrum.

Zoology

1. Chandra Letha, K. *Studies on the aphids of Trivandrum District*. Kerala. Dr. N. R. Prabhoo. Prof., Department of Zoology, University of Kerala, Trivandrum.

2. Das. Aparup. *Population genetics of Drosophila*. BHU. Dr. B.N. Singh, Department of Zoology, Banaras Hindu University, Varanasi.

3. Matkar, S.M. *Pest complex of soybean; Influence of crop sowing time on the major pests under treated and untreated conditions and biology of girdle beetle*. Devi Ahilya. Dr. S.R. Deobhakhta, Asstt Prof. Holkar Science College, Indore.

4. Singh, Arun Kumar. *Mammalian reproduction*. BHU. Prof. C.J. Dominic, Department of Zoology, Banaras Hindu University, Varanasi.

5. Singh, Rakesh Kumar. *Cell biology and immunology*. BHU. Dr. A. Sodhi, Department of Zoology, Banaras Hindu University, Varanasi.

6. Vyas, Harsh. *Studies on the succession of pest complex of fruit trees and ornamental plants around Indore*. Devi Ahilya. Dr. S.R. Deobhakta, Asstt Prof, Holkar Science College, Indore.

Medical Sciences

1. Abbas, Wafa Rahmetalla. *Role of Gaba in experimental peptic ulcerations*. BHU. Dr. R.K. Goel, Department of Pharmacology, Banaras Hindu University, Varanasi and Prof. S.K. Bhattacharya, Department of Pharmacology, Banaras Hindu University, Varanasi.

2. Dikshit, Badri Nath. *Analysis of ICDS programme impact on birth and child survival upto 6 yrs. of age in rural Varanasi*. BHU. Prof. S.D. Gaur, Department of Preventive and Social Medicine, Banaras Hindu University, Varanasi.

3. Mohammad Aslam. *Phytochemical and pharmacological studies on some Indian medicinal plants*. BHU. Dr. V.K. Agarwal, Department of Pharmacology, Banaras Hindu University, Varanasi and Dr. R.K. Goel, Department of Pharmacology, Banaras Hindu University, Varanasi.

4. Pandey, Mahendra Nath. *Samaj shastriya drishtikon mein Ganga pradushan ka adhyayan*. BHU. Prof. G.P. Dubey, Department of Basic Principles, Banaras Hindu University, Varanasi and Dr. J.D. Gode, Director, Institute of Medical Science, Banaras Hindu University, Varanasi.

5. Ravinder Kaur. *Bioactive terpenoids*. BHU. Prof. S. Ghosal, Department of Pharmaceutics, Banaras Hindu University, Varanasi.

6. Sahiwal, Asheema. *Evaluation of integrated child development in urban area of Varanasi District*. BHU. Dr. (Mrs) P. Kaur, Department of Preventive and Social Medicine, Banaras Hindu University, Varanasi.

7. Shanthy, A. *Studies on shilajit*. BHU. Prof. S. Ghosal, Department of Pharmaceutics, Banaras Hindu University, Varanasi.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Goswami, Sudipkumar. *Scattering of water waves in the presence of obstacles and associated mathematical methods.* Calcutta.

2. Jacob, M.J. *Probabilistic analysis of some queueing and inventory models.* CUST. Dr. A. Krishnamoorthy, Prof. Department of Mathematics and Statistics, Cochin University of Science and Technology, Cochin.

3. Lalan Singh. *A study of camposition operators L 2.* BHU. Dr. Nand Lal, Reader, Department of Mathematics, Banaras Hindu University, Varanasi.

4. Ramachandran Nair, V.K. *Queueing models with rest to the server after serving a random number of units.* CUST Dr. A. Krishnamoorty, Prof, Department of Mathematics and Statistics, Cochin University of Science and Technology, Cochin.

5. Samanta, Bibhaschandra. *Studies on elastic stability.* Calcutta.

6. Yadav, Shree Kcm. *Some results on fractional and multiple objective programming problems.* BHU. Dr. R.N. Mukherjee, Reader, Department of Mathematics, Banaras Hindu University, Varanasi.

Physics

1. Bandyopadhyay, Aditya Kumar. *Studies on fault-tolerant sequential machines.* Calcutta.

2. Bandyopadhyay, Rabin. *Studies on some aspects of non-perturbative field theory and chiral anomalies.* Calcutta.

3. Chandra Mohan, D. *Studies on some compound semiconductors.* Madurai.

4. Garg, Arun Kumar. *Electrical properties of tellurium films and tellurium-silicon heterojunction.* Delhi.

5. Ghosh. Banasri. *Some aspects of harmonic oscillators in $1+1$ dimensions, using model and phase transition phenomena.* Calcutta.

6. Hazarika, S. *Some experimental studies on lightening and VLF atmospherics.* Roorkee.

7. Khan, Iqbal Ahmad. *Electronegativity and chemical shift of X-ray absorption edges.* Bhopal. Dr. M. Hussain, Jamia Millia, New Delhi.

8. Mishra, Veena. *Some studies on representations of non-compact exceptional and Z_2 grades lie groups.* Delhi.

9. Muneera, C.I. *Oxidation studies of thin films of tin at room temperature.* Kerala. Dr. V. Unnikrishan Nair, Reader, Department of Physics, University of Kerala, Kariavattom.

10, Narayana Murthy, K.P. *Fluctuation phenomena in model non-equilibrium systems.* Hyderabad. Prof. S. Dattagupta, Reader, Department of Physics, University of Hyderabad, Hyderabad.

11. Ramachandra, Vullapalli. *Studies on spiral and V-shaped antenna arrays.* BHU. Prof. K.K. Dey, Reader, Department of Physics, Banaras Hindu University, Varanasi.

12. Ravindra Kumar. *Immunophysical and biorheological aspects of hanseniasis using vibrational, magnetic resonance, absorption and emission spectroscopic techniques.* Delhi.

13. Seetharami Reddy, Byreddy. *Experimental investigations on photo-electric cross sections in the energy region of absorption edges.* Andhra.

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15. Venu Gopal Reddy, K. *Experimental investigation of Sebased crystalline and amorphous systems.* Hyderabad. Prof. A.K. Bhatnagar, Head, Department of Physics, University of Hyderabad, Hyderabad.

16. Vikram Kumar, B.T. *A study of the equatorial ionospheric irregularities using V.H.F. backscatter and H.F. phase coherent radar techniques.* Kerala. Dr. P. Balarama Rao, Prof. Department of Physics, University of Kerala, Kariavattom.

Chemistry

1. Bhatt, K.N. *Studies on drug potentials.* Bhavnagar. Dr. P.B. Trivedi, Reader, Department of Chemistry, Bhavnagar University, Bhavnagar.

2. Bhatt, S.D. *Studies on latex and utilisation of biomass from laticiferous plants.* Bhavnagar. Dr. K.S. Rao.

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4. Dave, A.G. *Studies in heterocyclic compounds : Reactions of 4-hydroxy coumarins.* Saurashtra. Dr. V.M. Thakor.

5. Dubey, Rajesh. *Studies of serum proteins, amino acids, cholesterol and blood sugar, of normal individuals and subjects with disturbed carbohydrate metabolism in relation to Landsteiner's A+B—O blood groups.* Rohilkhand. Dr. R.K. Agarwal, Bareilly College, Bareilly.

6. Goyal, Mahendra Kumar. *Fluorine containing bioactive heterocycles with special reference to hydantoins and oxazoles.* Rajasthan. Prof. K.C. Joshi, Department of Chemistry, University of Rajasthan, Jaipur.

7. Gupta, Basant. *Chemical studies for commercial methods of preparation, isolation and determination of organic compounds of perfumery and cosmetic importance.* Rohilkhand. Dr. R.K. Baslas, Govt. Raza P.G. College, Rampur.

8. Jagadishwar Rao, S. *Synthesis of biologically active compounds : Long chain aliphatic alcohols and insect pheromones using thiophene as a chain extender.* Osmania.

9. Jhanji, A.K. *Studies on the complexes of transition metals with macrocyclic ligands.* Roorkee.

10. Joshi, Yashodhara. *Synthesis of some novel dibenzodiazepine and dibenzothiazepine and studies of their metal complexes.* Rajasthan. Prof B C Joshi, Department of Chemistry, University of Rajasthan, Jaipur.

11. Kapoor, Vijay Nandan. *Studies on substituted dithiocarbamate metal complexes.* Rohilkhand. Dr. R. C. Agarwal, Hindu College, Moradabad.

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14. Lakshmi Shantha, K. *Synthesis and characterisation of poly vinyl oxo esters of long chain oxo acids.* Osmania.

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16. Malhotra, Sunita. *Synthesis of some naturally occurring heterocyclic polyphenolics.* Delhi.

17. Manju Bala. *Complex compounds of Schiff bases derived from polyheterocyclic amines.* Banasthali. Dr. A. I. P. Sinha, Prof and Head, Department of Chemistry, Banasthali Vidyapith. Rajasthan

18. Muralidhar, Jalasutram. *Studies on blue peroxy chromic acid derivatives and adducts.* Andhra.

19. Murali Mohan, K. *Interaction of purines, pyrimidines nucleosides with C/S-dichloromethioninepalladium (II) and II-allypalladium (II) Chloride.* Osmania.

20. Ojha, Satish Chandra. *Proton transfer and metal association interactions of some heterocycles.* Rohilkhand. Dr. B.R. Singh, Sahu Jain College, Najibabad.

21. Padhy, Sasanka, Sekhara. *Some aspects of gamma radiolysis of aqueous solutions of vanadium-nitrilotriacetate chelates.* Delhi.

22. Pushpakumari, K. N. *Studies on lemongrass oil.* CUST. Dr. Paul A. Vatakencherry, Prof. and Head, Department of Applied Chemistry, Cochin University of Science and Technology, Cochin.

23. Ramachandran, P. *Studies on anodes for electrochemical cells in electrowinning of metals.* Madurai.

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25. Rao, M.V. *Studies on polymers.* Saurashtra. Dr (Mrs.) H.H. Parekh, Department of Chemistry, Saurashtra University, Rajkot.

26. Sabhapati. *Investigations on mixed ligand complexes of the rare earth ions.* Rohilkhand. Dr. Ram Nayan.

27. Saikia, D.K *Studies on the sorptive properties of bed sediments of river Ganges and transport of some heavy metal ions.* Roorkee.

28. Saikia R. *Studies on nucleophilic reactions of some O-substituted oximes and related compounds.* Roorkee.

29. Sanghi, Sunil Kumar. *Analysis of certain pharmaceuticals by spectrophotometry and high performance liquid chromatography.* Durgawati. Dr. D. D. Mishra, Prof and Head, Department of Chemistry, Rani Durgawati Vishwavidayalaya, Jabalpur.

30. Sarángi, Chintamani *Studies on some catalysed and uncatalysed organic reactions.* Berhampur. Prof. Subas C. Pati, Department of Chemistry, Berhampur University, Berhampur.

31. Senapati, Manorama. *Electron transfer reactions.* Berhampur Dr. S. N. Mahapatro, Department of Chemistry, Trinity University, 715 Stadium Drive, Texas : 78284 USA.

32. Sharma, Ashwani Kumar. *Synthesis of analogs of luliberin (LH-RH) and melanostatin (MIF) containing β-dehydroamino acids and conformational studies on some model dehydropeptides.* Delhi.

33. Singh, Indra Bhushan. *Corrosion and passivation of metallic glasses.* BHU Dr. R. S. Chaudhary.

34. Singh, Padma. *Corrosion of brass and its constituents in aquo-organic solvent mixtures through polarization technique.* BHU. Prof. R. N. Singh, Department of Applied Physics, Banaras Hindu University, Varanasi.

35. Singh, Vinod Kumar. *Some investtgations on corrosion passivity and pitting behaviour of austenitic stainless steels in alcohol—*H_2SO_4 *mixtures.* BHU. Dr. V. B. Singh.

36. Subramaniam, P. *Linear free energy relationships in systems : Oxidations of phenylmercaptoacetic acids by bromamine T, potassium hexacyanoferrate (III) and sodium metaperiodate.* Madurai.

37. Syed Sirajul Islam—*Studies on immunochemically active polysaccharide of Shigella.* Calcutta.

38 Tripathy, Pradeep Kumar. *Studies in heterocycle using 2—oxazolin-5-ones as synthons.* BHU. Dr. A. K. Mukherjee, Reader, Department of Chemistry, Banaras Hindu University, Varanasi.

39. Uma Sundari, Pemmaraju. *Synthesis of 1-phenylnaphthalene lignan lactones bis (pyridine) silver permanganate as a regioselective reagent.* Andhra.

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44. Yadav, Bhoore Singh. *Chemical investigation on seed polysaccharide of Cassia alata (Dadmurdan) seeds.* Rohilkhand. Dr. V. K. Jindal, Agra College, Agra.

Earth Sciences

1. Anand, Rajesh. *A contribution to the geology and geochemistry of the ophiolites and associated sediments in Dras-Kargil and adjoining areas of Ladakh (J & K).* Panjab.

2. Bandyopadhyay, Krishnaprasad. *Paleogene stratigraphy and larger foraminifera of Guvar-Nareda area, Kutch, Gujarat.* Calcutta.

3. Harinarayan, T. *Telluric and magnetotelluric field studies in parts of geothermal areas of Peninsular India.* ISM. Prof. R, K. Verma, Indian School of Mines, Dhanbad and Dr. S. V. S. Sarma, NGRI, Hyderabad.

4. Kurian, N. P. *Wave height and spectral transformation in the shallow waters of Kerala coast and their prediction.* CUST. Dr. M. Baba, Scientist-in-charge, Regional Centre, for Earth Science Studies, Cochin University of Science and Technology, Cochin.

5. Lahiri, Amitabha. *Tectonic evolution of the Dlhi supergroup and associated rocks in Phulad-Deogarh region, Central Rajasthan.* Calcutta.

6. Somani, Raman Lal. *Fluid inclusion studies of fluorite and associated minerals from Chowkri-chhapali and Mandokipal areas, Rajasthan.* Rajasthan. Dr. P. S. Ranawat, Department of Geology, University of Rajasthan, Jaipur.

7. Srinivas, M. *Studies on the petrology and engineering properties of the rocks around Huzurabad, Karimnagar District, A.P.* Osmania.

8. Yadav, Kashi Nath Singh. *Computer modelling of seismic problems associated with hydrocarbons and coal.* BHU. Dr. Avadh Ram, Reader, Department of Geophysics, Banaras Hindu University, Varanasi.

9. Yugandhara Rao, Allika. *Geology, geochemistry and genesis of Garbham and Koduru manganesh deposit of Vizianagaram District, Andhra Pradesh.* Andhra.

Engineering & Technology

1. Hanumantha Rao, Garapati. *Kinetic model discrimination and parameter estimation using computer aided design of sequential experiments.* Andhra.

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EDUCATIONAL PHILOSOPHY

Subramanyam, Ka Naa. Education sans philosophy. *Deccan Chronicle* 22 April, 1988.

Subramanyam, Ka Naa, Random thoughts on education. *The Times of India* 28 April, 1988.

EDUCATIONAL PSYCHOLOGY

Venkataraman Jaishree. A backward child needs care. *The Hindu* 12 April, 1988.

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BIGOTS Vs SCHOLARS (ed). *The Hindustan Times* 30 April, 1988.

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Amrik Singh. The plus two muddle. *The Hindustan Times* 11 April, 1988

Hasan Suroor. Literacy mission : Colossal task. *The Hindu* 28 April, 1988.

Jacob, Kuruvila K. A policy with a difference. *The Hindu* 26 April, 1988.

John, E.J. Priorities in higher learning. *The Hindu* 26 April, 1988.

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Rahi, G. S, Pitfalls in uniform syllabi. *The Tribune* 18 April, 1988.

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Gill, Tejwani S. Amnesia of regional language. *The Tribune* 18 April, 1988.

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Ramachandran Nair, K. R. Teachers and code of conduct. *The Hindu* 12 April, 1988.

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Lele, R. D. Breaking barriers in bio-technology. *The Pioneer* 15 April, 1988.

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Amrik Singh. Evil of mass copying. *The Hindustan Times* 28 April, 1988.

EXAMINATION TRAUMA (ed) *Deccan Herald* 12 April, 1988.

Kapoor, Prem P. Evaluation of teaching. *The Tribune* 17 April, 1988.

Khullar, K.K. New education policy and examinations. *The Indian Nation* 8 April, 1988.

ECONOMICS OF EDUCATION

A MATTER OF JOBS (ed) *The Assam Tribune* 2 April, 1988.

MIDDLE CLASS BETRAYED (ed) *The Hindustan Times* 19 April, 1988.

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BOOKS & LIBRARIES

Hassan Ahmad, Datuk. Signalling an electronic book era. *Deccan Chronicle* 17 April, 1988.

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Selvam, S. Learning materials in adult literacy. *The Hindu* 18 April, 1988.

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Gupta, Vijay. A jinxed institute (Netaji Subhas National Institute of Sports) *The Tribune* 3 April, 1988.

Suroor, Hasan. Where are the IITs going. *The Hindu* 7 April, 1988.

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Faculty of Education & Psychology

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Faculty of Commerce

Professor of : (37) Accounts (VIIth Plan post), (38) Business Economics (VIIth Plan post), (39) Commerce (VIIth Plan.

Faculty of Law

Professor of : (40) Law (VIIth Plan post)

Faculty of Management Studies

Professor of : (40a) Marketing

LECTURERS

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	Faculty of Arts			
(41)	Lecturer in Economics	4-Posts (2-SAP Posts 2-Uni. Posts)	1 SC (SAP) 1 ST (Uni) 1 S BC (Uni.)	Third Time First Time First Time
(42)	Lecturer in English	1 Uni. Post	1 ST	Second Time
(43)	Lecturer in Sociology	3 Uni. Posts	1 ST	First Time
(44)	Lecturer in Hindi	2 Uni. Posts	1 ST 1 SC	Second Time Second Time
(45)	Lecturer in Political Science	1 SAP Post	—	—
(46)	Lecturer in Gujarati	2 Uni, Posts	1 ST	Third Time
(47)	Lecturer in German	1 Uni. Post	—	—
(48)	Lecturer in Sindhi	1 Uni. Post	—	—
(49)	Lecturer in Linguistic	1 Uni. Posts	—	—
	Faculty of Science			
(50)	Lecturer in Statistics	1 Uni. Post	1 ST	Third Time
(51)	Lecturer in Chemistry	1 Uni. Post	1 ST	Second Time
(52)	Lecturer in Physics	1 Uni. Post	1 ST	Second Time
(53)	Lecturer in Biochemistry	3 Uni. Posts	1 ST 1 SC/1 SEBC	Second Time First Time
(54)	Lecturer in Zoology	4 Posts	1 ST/1 SC 1 SEBC	First Time —
(55)	Lecturer in Microbiology	1 Uni. Post	1 ST	Second Time
(56)	Lecturer in Geography	1 Uni. Post	—	—
(57)	Lecturer in Mathematics	1 Uni. Post	—	—
	Faculty of Management Studies			
(58)	Lecturer in Marketing	1 Uni. Post	—	—
(59)	Lectuier in Organisational Behaviour	1 Uni. Post	—	—
	Faculty of Technology & Engineering			
(60)	Lecturer in Mechanical Engg.	4 Uni. Posts	1 SEBC 1ST/1SC	Second Time First Time
(61)	Lecturer in Textile Chemistry	1 Post	1 SEBC	Third Time
(62)	Lecturer in Applied Mechanics	1 Post	1 ST	First Time
(63)	Lecturer in Applied Mathematics	1 Post	—	—
(64)	Lecturer in Architecture	2 Uni, Posts	1 ST	First Time
	M.K. Amin Arts & Science College and College of Commerce, Padra			
(65)	Lecturer in Geography	1 Uni. Post	—	—
(66)	Lecturer in Ancient Indian Culture	1 Uni. Post	—	—
(67)	Lecturer in Political Science	1 Uni. Post	—	—
(68)	Lecturer in Accounts	2 Uni. Posts	—	—
(69)	Lecturer in Mathematics	1 Uni. Post	—	—
	Faculty of Home Science			
(69a)	Lecturer in Clothing & Textiles	2 Uni. Posts	—	—
(70)	Lecturer in Physics	1 Uni. Post	—	—
(71)	Lecturer in Arts & Crafts (Home Management Deptt.)	1 Uni. Post	—	—

1	2	3	4	5
(72)	Lecturer in Child Development	2 Uni. Posts	1 ST 1 SEBC	Second Time Second Time
	Polytechnic			
(73)	Lecturer in Civil Engg.	1 Uni. Post	1 ST	First Time
(74)	Lecturer in Chemistry	1 Uni. Post	—	—
	Faculty of Performing Arts			
(75)	Lecturer in Music (Vocal)	1 Uni. Post	1 ST	First Time
(76)	Lecturer in Tabla	1 Uni. Post	—	—
	Oriental Institute			
(77)	Research Officer	1 Uni. Post	1 ST	Third Time

SCALE OF PAY—

FOR HUMANITIES AND SCIENCES AND TECHNOLOGY & ENGINEERING

(1)	**Professor**	Rs. 1500-60-1800-100-2000-125/2-2500
(2)	**Reader**	Rs. 1200-50-1300-60-1600-Assessment-60-1900
(3)	**Lecturer/Research Officer**	Rs. 700-40-1100-50-1300-Assessment-50-1600

The above pay scales are likely to be revised.

For Polytechnic

(1)	**Lecturer**	Rs. 2200-75-2800-EB-100-4000

The application forms duly completed in all respects alongwith prescribed fees as shown below in the form of Demand Draft in favour of Registrar should reach the Registrar, M.S. University of Baroda, Vadodara 390 002 on or before **15th Juue 1988**.

Fees : (1) Rs. 10.00 (Rs. 2.50 for S.C./S.T.) applicants for posts of Professors, Readers)
(2) Rs. 8 00 (Rs. 2.00 for SC/ST) for posts of Lecturers and Research Officer.

The above prescribed fees can also be paid in CASH and obtain receipt thereof from the Accounts Section of the University Office on or before the stipulated date.

Note :

(1) The candidate must possess the required qualifications at the time of last date fixed for receipt of applications by the University.
(2) Canvassing direct or indirect will be a disqualification.
(3) No application will be considered which is received after the last date of receipt of applications, and any kind of fees paid by the applicant is non-refundable and no correspondence in this respect will be entertained.
(4) Application on Plain paper will not be considered and no correspondence in that respect will be entertained.
(5) Reservation of post/s is restricted to those who are proclaimed as such and in support of this Certificate of competent authority from the Gujarat State is required to be submitted alongwith the application.
(6) Only SC/ST/SEBC candidate need apply for reserved posts except for the posts which are advertised THIRD TIME.
(7) So far as the reserved posts are concerned and advertised for the Third Time they will be filled up by other suitable and eligible candidates, if no candidate from the concerned reservation is available or found suitable by the Selection Committee.
(8) Candidates if called for interview will have to come at their own expense.
(9) The applicant who wants to apply for the post of Professor/Reader has to submit his application **in six copies**. However, the University will supply only one application form and the candidate is free to send five other xerox copies of this form duly filled in,
(10) The applicant will have to apply only for the post for which he asks for the application form and issued to him. However, if the applicant while submitting the application form makes any changes in the nature of post the same will not be considered as valid and same will be filed and no correspondence in this respect will be entertained and amount paid will be forfeited.

R.V. Kothari
UNIVERSITY REGISTRAR

INDIAN VETERINARY RESEARCH INSTITUTE

IZATNAGAR, (UP).243122

ADMISSION NOTICE

A Competitive Written Examination for admission to the Ist year of the Academic Session [1988-89] of Doctoral and Master's Degree Programme in the following disciplines, will be held on Monday, Ist August, 1988 at Bangalore, Calcutta and Izatnagar Centres :

A. Doctoral Programme [Ph.D.]

1. Animal Breeding
2. Animal Genetics
3. Animal Gynaecology & Obstetrics
4. Animal Nutrition
5. Animal Physiology
6. Animal Reproduction
7. Biochemistry
8. Animal Science Extension
9. Livestock Products Technology
10. Poulty Science
11. Veterinary Bacteriology
12. Veterinary Immunology
13. Veterinary Medicine
14. Veterinary Parasitology
15. Veterinary Pathology
16. Veterinary Pharmacology
17. Veterinary Surgery
18. Veterinary Virology

Eligibility

(i) At least 60% marks in aggregate (55% for SC/ST) in Master's Degree Examination in the relevant subject.

(ii) A good knowledge of English is essential.

B. Master's Programme [M.V.Sc./M.Sc.]

1. Animal Genetics & Breeding
2. Animal Gynaecology and Obstetrics
3. Animal Nutrition
4. Animal Physiology
5. Avian Diseases
6. Biochemistry
7. Biostatistics
8. Biotechnology
9. Animal Science Extension
10. Epidemiology
11. Livestock Prod. & Management
12. Livestock Economics
13. Livestock Products Technology
14. Poultry Science
15. Veterinary Bacteriology
16. Veterinary Immunology
17. Veterinary Medicine
18. Veterinary Parasitology
19. Veterinary Pathology
20. Veterinary Pharmacology
21. Veterinary Public Health
22. Veterinary Surgery
23. Veterinary Virology.

Eligibility

(i) At least 60% marks in aggregate (55% for SC/ST) in Bachelor's Degree in Veterinary Science/Dairy Science/ Animal Science/Agriculture (with Animal Science as elective) Life Sciences/ Statistics.

How to Apply

Application form together with the Information Bulletin can be had personally from the University Office of the Institute on cash payment of Rs. 15/- or through post by sending requisition to **The Assistant Administrative Officer (Academic), IVRI, Izatnagar (UP)—243122**, along with a crossed Bank Draft for Rs. 25/- for each form, drawn in favour of **Director, IVRI, Izatnagar,** payable at State Bank of India, CARI Branch, Izatnagar, accompanied by a self-addressed unstamped envelope measuring 28 cm x 20 cm.

Note

(i) 60% marks will be considered equivalent to an OGPA 2.10 out of 3.00; 2.80 out of 4.00; 3.50 out of 5.00 and 7.00 out of 10.00 GPA systems.

55% mark will be considered equivalent to an OGPA 1.94 out of 3.00, 2.58 out of 4.00, 3.23 out of 5.00 and 6.45 out of 10.00 GPA systems.

(ii) Candidates who are appearing in the qualifying examination prescribed for admission to a particular programme, are also eligible to appear in the Competitive Examination provided they submit final Marks Sheet/PDC by 15.7.88 otherwise they will stand disqualified.

(iii) A candidate may indicate two disciplines of his choice in order of preference in the column provided in the Application Form according to the eligibility qualifications.

(iv) 15% and 7.5% seats are reserved for SC and ST candidates, respectively.

(v) The SC/ST candidates called for written examination will be paid travelling allowance limited to IInd Class Railway fare both ways on production of Caste Certificate and evidence of journey performed.

(vi) Final selection will be based on academic career and performance in the competitive examination.

(vii) The venue, date, and time table for Examination are available in the Information Bulletin.

(viii) **No. of seats : 15 seats** are available in Biotechnology and 3—5 seats in rest of the disciplines.

(ix) Financial assistance in the form of **IVRI Fellowship (Junior/Senior)** shall be offered to the selected students on certain terms and conditions.

(x) Application forms will be issued from : 16.5.88

(xi) Last date for receipt of requisition for supply of application forms : 10.6.88

(xii) Last date for receipt of the application forms duly filled in (without late fee) : 20.6.88

(xiii) Last date for receipt of the application forms duly filled in (with late fee of Rs. 50/-) 30.6.88

H. C. Saxena
ASSTT. ADM. OFFICER (A)
for REGISTRAR

GUJARAT VIDYAPITH

AHMEDABAD-380 014

Applications are invited for the below-mentioned posts :

1. **Professors** (1.1) Principal—M.D. Social Service College (1.2) Social Work (4500-7300). 2. **Readers:** (3700-5300) (2.1) Rural Technology-Randheja (2.2) Development Officer at Ahmedabad for planning and evaluation of the U.G.C. Schemes. (2.3) Library Science-Ahmedabad (2.4) Rural Management and Rural Development at Sadra village (2.5) Mechanical Engineer for Rural Service Centres at Sadra/Randheja (2.6) System-in-Charge—Computer Science Unit (Pay fixation according to Post-Graduate qualifications Rs. 3000-4500/ or Rs. 3700-5300. 3. **Lecturers :** (2200-4000) (3.1) Physical Education Teacher (Male) for Sadra Campus (3.2) Physical Education Teacher (Female) for Randheja Campus

and one (Male) for Ahmedabad Campus —for these three posts the candidates should possess M.A. IInd class and Post-Graduate Diploma in Physical Education & have Experience (3.3) Hindi Language and Literature (Reserved) (3.4) Social Anthropology (reserved) (3.5) Problems of Elementary Education for M.Ed. Course (reserved) (3.6) Asstt. Librarian (Sadra, Randheja and Ahmedabad) includes reserved post (3.7) Adult Education and Population Education Programme Organisers (Sadra and Randheja) (3 8) Gandhian Thought (3.9) Asstt. Registrar (Accounts) (3.10) Health Officer and Doctor (Sadra-Randheja) and Ahmedabad) one post for each place (3.11) Rural Development and Rural Management (3.12) Computer Programmer and Instructor (3.13) Tribal Education. 4. **Technical Assistants :** (1400-2300) (4.1) Language Education Laboratory (4.2) Library (reserved) (4.3) Instructor in Carpentry and Blacksmithy (reserved) (4.4) Computer Technical Assistant (4.5) Micro Photographist for Archival Cell (4.6) Electronic Equipment Assistant for Adult Education Work (4.7) Lab Asstt. for Home Science Laboratory at Randheja (4.8) Hindi, Gujarati and English Stenographers (4.9) Music Teacher for Randheja and Sadra Rural Colleges. 5. **Curator** of Museum (for candidates holding Post-Graduate degree and M. degree (2200-4000) 6. **Warden** For Vallabh High School, Bochasan (consolidated salary Rs. 1000/-). 7.1 Research Associate (Post-doctoral) for Buddhist Studies (7.2) Documentation Officer (consolidated salary Rs. 1400/- for Buddhist Studies) (8) Proof Reader (1200-2040).

Last date for receiving the application forms is 25-5-1988. Other details will be sent along with the application forms on payment of Rs. 2/- Those intending to get the application form should send money order of Rs. 3/- with name and address on M. O. coupan. Only applications made on the prescribed forms will be considered. For reserved posts if qualified candidates are not available, vacancies will be filled up with other candidates on temporary basis. Apart from basic salary, approved dearness allowance and house rent allowance etc. will also be available.

Vinod Tripathi
REGISTRAR

UNIVERSITY OF KERALA
University Buildings, Trivandrum

No. PR. 1201/1/1988
Erratum Notification

In partial modification of this office notification of even No. dated 10-3-1988, it is hereby notified that the posts of Technical Officer and Shift Operator belong to the Computer Centre of the University, and, not to the Department of Computer Science.

The last date for receipt of applications for these posts alone has been extended to **20-5-1988.**

Prof. S.K. Rajagopal
REGISTRAR

GURU NANAK DEV UNIVERSITY AMRITSAR

(Establishment Branch)
Advertisement No. 2/88

Applications are invited for the following posts on prescribed form obtainable at a price of Rs. 2/- from the office of the Registrar by making a written request accompanied by self addressed Rs. 1-40 stamped envelope of 23 x 10 Cms. so as to reach this office by **25-5-88** alongwith crossed Indian Postal order(s) of Rs. 10/- for posts at Sr. No. 1 to 20 and Rs. 5/- for others (non-refundable) drawn in favour of the Registrar, Guru Nanak Dev University, Amritsar.

Persons already in employment must send their applications through their employers. Candidates from within India may not be considered in absentia. Higher start in the grade may be given depending upon qualifications and experience.

The qualifications for the posts of Professor, Lecturer will be those as prescribed by the University Grants Commission and approved by the State Government from time to time.

Professors (Grade Rs. 4500-7300)

1. Economics—2
2. Physics—1

3. System Incharge—1) for
(Grade Rs. 1100-1600 un-) com-
revised.) puter
4. Programmer—1) centre
(Grade Rs. 700-1600))
unrevised)

5. Archivist—1 (Grade Rs. 1200-1900) unrevised for Archival Cell History Department.

Lecturers (Grade Rs. 2200-4000)

6. Economics—1
7. Biology—1
8. Electronic Technology—2
9. Political Science—1 (for University College, Jalandhar)
10. Commerce—1 (for University College, Jalandhar)
11. Physics—1
12. Russian—1 (for the department of Classical Indian Foreign Languages).
13. Assistant Archivist—1 (Grade Rs. 700-1600 unrevised,) for Archival Cell History Deptt.
14. Assistant Registrar—1 (Grade Rs. 940-1850+100 special pay)
15. Warden Girls Hostel—1 (Grade Rs. 550-900 UGC)
16. Assistant Publication Officer (Production)—1 (Grade Rs. 700-1200)

Research Associates (Rs. 1400/- p.m. fixed)

17. History—2 (One for project on Panjab studies)
18. School of Panjabi Studies —1

Junior Research Fellow (Rs. 800/- p.m. fixed)

19. Mathematics—1
20. English—1
21. Technician Grade-1 (Photomicrography) (Biology Deptt.) Grade Rs. 700-1200.
22. Mechanic Glass Blowing—1 (Chemistry, Grade Rs. 600-1120)
23. Technical Assistant Grade V (Tissue Culture)—1 (Biology Deptt. Grade Rs. 600-1120)

24. Conservationist—1 (Grade Rs. 425-700) for Archival Cell History Deptt.

25. Technician Grade—II (Biology)-1 Grade Rs. 480-800.

26. Technician Grade-III (Herbanum) Biology Deptt.-1 Grade Rs. 480-800

27. Foreman Electrical (Construction)-1 Grade Rs. 510-940.

28. Watch & Ward Supervisor —1 (for Security Deptt.) Grade Rs. 450-700.

29. Staff Nurse—1) for Uni-
Grade Rs. 510-940) versity
30. Laboratory) Health
Technician —1) Centre
Grade Rs. 510-940)

31. Laboratory Attendant (Biology)—1 Grade Rs. 400-600

32. Field Supervisor (Youth Welfare Deptt.)—1 Grade Rs. 400-600

33. Technician-B (Electronics) (USIC)-1 (Grade Rs. 320-450)

Qualifications/Specialisations

For Sr. No. 1

For Ist post

(i) Economic Theory
(ii) Economic Development

For 2nd post

(i) International Economics
(ii) Money and Banking
(iii) Agricultural Economics

For Sr. No. 2 : In Any area of Physics including theoretical Physics.

Sr. No. 3 : Master's Degree in Engineering/Technology with Computor or Electronics specialization or Master's degree in Science/Mathematics/ Economics/Statistics/Operational Research/Commerce/Management with Post Graduate Diploma or Bachelor's degree in Engineering/Technology with Computer or Electronics specialization or equivalent.

Experience

Nil for ME/M. Tech., 2 years for M.Sc./B.E./B. Tech.

Sr. No. 4 : First or Second Class Master's degree in Computor Science with atleast one year experience of working in a university/Government organisation.

OR

First or Second Class Master's degree in Mathematics/Statistic/Physics/Chemistry/Economics or a graduate in Engineering with a Post Graduate Diploma course in Computor Science of Guru Nanak Dev University or equivalent with atleast two years experience of working in a University/Government organisation. The candidates who do not possess the post graduate diploma will be required to have atleast 5 years working experience in computor programming in a University/Government organisation.

Note : The Selection Committee will interview only those candidates who qualify in a written test to be devised by the Selection Committee.

Sr. No. 5 : (i) Atleast 2nd class Master's degree in History with an optional paper in Indian History of post 1600 period from a recognised University.

(ii) Preferably, Diploma in Archival Studies or Certificate course in Archival Administration and record Management.

(iii) Experience of editing historical documents.

Sr. No. 6 : Specializations

M.A./M.Sc. Statistics with specialization in Theory of Statistics / Econometrics / Mathematical Economics/Computor applications.

Sr. No. 7 : Any modern discipline of Biology preferably in the Microbiological sciences, Botanical Sciences and Human Biology.

Sr. No. 8 : Master's degree in Biotechnology/Chemical Engineering. In case suitable candidates with Master's degree are not available or found unsuitable, first class B. Tech./B.E. in Bio-technology/Chemical Engineering will be considered. However, they will have to obtain Master's degree in the relevant field within five years.

Sr. No. 13 : (i) Second Class Master's degree in Modern Indian History of a recognised University or equivalent.

(ii) Preferably diploma in Archival Studies or Certificate course in Archival Administration and Record Management.

(iii) About 2 years experience of Research or teaching in Modern History to University classes or about 2 years' experience of work in Government record office.

Sr. No. 14 : M.A. or B.A., LL.B., Knowledge of Panjabi upto Matric Standard. Ten years experience in a University/Corporate Body/Government Office; Three years experience as Superintendant Grade-I or equivalent.

Sr. No. 15 : (i) Masters' degree or an equivalent qualifications from recognised university.

(ii) Atleast five years experience of having managed a women hostel preferably in University.

(iii) Experience of teaching and/or of organising extra curricular activities would be additional qualification.

Sr. No. 16 : (i) Matric second division and three years diploma of Printing Technology.

(ii) Five years practical experience relating with production of books and research journals of University level.

OR

M.A. with three years experience of production of books. Must have knowledge of modern printing technique.

Sr. No. 17 : A person with consistently good academic record with Ph.D. or M. Phil or at least three years research experience may be appointed as Research Associate.

Sr. No. 18. Essential

(i) M.A., M.Phil in Linguistics.

(ii) M.A. Punjabi or Sound knowledge of Punjabi upto B.A. level.

Preferable

(i) Research experience in the field of Punjabi language and/or coinage of terminology.

(ii) Comprehensive knowledge of the structure of Punjabi language field mehtodology and data collection.

Sr. No. 19 : First or high second class Master degree in Mathematics having good academic record and aptitude for research.

Sr. No. 20 : Master of Arts from a recognised university in India or an equivalent degree from a foreign university.

Sr. No. 21 : B.A./B.Sc., Diploma in Photography from recognised institution; five years experience in Photography preferably in Photomicrography.

Sr. No. 22 : Matric/Higher Secondary or equivalent with three years diploma course from recognised institution or three years experience in a reputed organisation and expert knowledge of Scientific Glass working. Blowing particularly with hard glasses and as applied to high vacuum apparatus, making of (hard) glass-to-metal seals, handling of glass working lathes etc.

Sr. No. 23 : B.Sc. with Botany and Zoology/Agriculture with at least 2 years experience in tissue culture.

Sr. No. 24 : (i) B.Sc.

(ii) Certificate Course in Repair and Conservation.

Sr. No. 25 : Pre-Medical with a minimum experience of five years as Laboratory Attendant in University or Matric with eight years experience of working as Laboratory Attendant in University.

Sr. No. 26 : Pre-Medical with a minimum experience of five years working as Lab. Attendant in Plant Science laboratory of a University or Matric with eight years experience as Lab. Attendant in Plant Science Laboratory. The candidates who have been involved in the collection of plants/animals will be given preference. Qualifications may be relaxed if the candidate has been involved in the collection of plant/animals for 15 years.

Sr. No. 27 : I.T.I. with 6 years experience as Electrician.

OR

'A' grade Licence from Chief Electrical Inspector to Punjab Govt. with atleast 8 years experience. Person having worked in a supervisory capacity will be given preference.

Sr. No. 28 : Retd. Sub. Major/Hony Lieut. Matric/Ist Class Army.

Service Condition

Inf./Armourd Corps/Arty/Fighting arms.

Preference will be given to Sub-Major who Commanded a team as Sub-Maj. of a Bn/Regt.

A practical soldier is preferred.

Sr. No. 29 : Matric with Diploma in General Nursing and mid wifery from a recognised Institution and Registration with State Nursing Council. Punjabi upto Matric. Experienced hand will be preferred.

Sr. No. 30 : Matric, Diploma in Laboratory Technician from a recognised institution. Punjabi upto Matric standard. Preference will be given to the experienced hand.

Sr. No. 31 : Matric with Science. Preference will be given to those having experience of working in Scientific laboratory.

Sr. No. 32 : (i) Minimum academic qualification B.A.

(ii) Two years experience in Youth Leadership Training camp/Hiking and Trekking Camp.

(iii) Must have achievements in Cultural Competitions.

Sr. No. 33 : Diploma in Electronics from a recognised Polytechnic or Certificate Course in Electronics with three years experience of repair and maintenance of electronic instruments in a recognised institution.

The candidate must have passed also Matric with at least second division.

Note : Those who have already applied for the posts of Archivist, Assistant Archivist and Conservationist need not apply again.

Candidates belonging to Scheduled Castes/Backward Classes of Punjab State when called for interview will be paid travelling allowance according to University rules.

K.S. Thind
REGISTRAR

UNIVERSITY OF CALCUTTA

Senate House, Calcutta-73

Advt. No. Est./3/88

Applications are invited for the posts of University Readers/Lecturers in the U.G.C. Scales of Pay (i.e. Readers 1200-1900/-, Lecturers Rs. 700-1600/-) plus allowance as may be admissible from time to time under the rules of the University. Higher initial pay within the grade may be given to an incumbent in consideration of excellence of academic record and experience. The University offers tripple retirement benefits, i.e. Contributory P.F., Gratuity and Pension as per the University Rules. Appointment will be made on merit without discrimations on grounds of race, religion, language or sex; however, working knowledge of written and spoken Bengali is desirable.

Essential Qualifications and Experience

(a) Uniformly good academic

career with the Master's and Bachelor's Degree with Honours of this University or equivalent.

(b) Evidence of continuing research interest as manifest in published work in reputed research journals or Doctoral degree of a recognised University.

(c) In the case of posts under the Faculties of Medicine and Technology, candidates must possess the essential qualification and/or experience required for the posts as laid down by the respective professional bodied viz. the Medical Council of India and the All India Council for Technical Education, as the case may be where applicable.

(d) Teaching experience at the Post-graduate level or relevant Industrial/Professional Experience–(i) for Readers: 10 years. (ii) For Lecturers-5 yrs. (Degree and Research/Teaching experience shall be in the subject concerned or in an interdisciplinary field considered relevant by the Selection Committees).

Relaxations

The Syndicate may relax, if so recommended, by the Selection Committee on specific grounds, the stipulations regarding qualifications and the number of years of relevant experience in case of candidates possessing exceptionally good academic records and outstanding capabilities. The Selection Committee may also consider suitable qualified persons who may not formally apply.

Group—A

Name of the Department

1. **Philosophy**
   Reader—2 posis
2. **Commerce**
   Reader—3 posts
   Lecturer—3 posts
3. **Library Science**
   Reader—2 posts
   Lecturer—4 posts
4. **Economics**
   Reader—1 post
   Lecturer—1 post
5. **Linguistics**
   Lecturer—3 posts
6. **Tamil**
   Lecturer—2 posts
7. **Education**
   Lecturer—1 post
8. **Urdu**
   Reader— 1 post
   Lecturer—1 post
9. **South & South East Asian Studies**
   Reader— 1 post
   Lecturer—1 post
10. **Ancient Indian History and Culture**
    Reader— 3 posts
    Lecturer—2 posts
11. **Sanskrit**
    Lecturer—4 posts
12. **Hindi**
    Reader— 2 posts
    Lecturer—2 posts
13. **Arabic & Persian**
    Lecturer—2 posts
14. **Pali**
    Reader— 1 post
    Lecturer—1 post
15. **Language Deptt.**
    Reader— 1 post
    Lecturer—7 posts
16. **History Department**
    Reader— 3 posts
    Lecturer—3 posts
17. **Museology**
    Reader— 2 posts
    Lecturer—2 posts
18. **Journalism**
    Reader —2 posts
    Lecturer—2 posts
19. **Business Management**
    Reader— 2 posts
    Lecturer—1 post
20. **Sociology**
    Reader— 2 posts
    Lecturer—3 posts
21. **Archaeology**
    Lecturer—1 post
22. **Bengali**
    Reader— 1 post

Group A—Specialisation

Commerce

Reader—3 posts

1. Master's degree in Commerce with specialisation in accountancy (One post)

2. Master's degree in commerce (One post)

3. Master's Degree in Statistics (One post)

Lecturer—3 posts

1. Master's degree in Commerce with specialisation in Accountancy (One post)

2. Master's degree in Economics (One post)

3. Master's degree in Commerce (One post)

Business Management

Reader— 2 posts
Lecturer—1 post

Economics with specialisation in Econometrics.

Specialisation in any of the functional areas of management, viz. marketing, personnel and finance.

South and South East Asian Studies

Reader—1 post

Master's degree in Economics/Geography/Physics/Sociology/Statistics—Desirable qualifications: Experience of Research Bangladesh/Burma/Philippines/Thailand.

Lecturer—2 posts

1. Specialisation in Burmese Language.

2. Specialisation in Thai language.

Archaeology

Lecturer—1 post

Prehistory and Archaeology—Ethnography 1 M.A. in Archaeology.

Department of Library Science

Readers—2 posts
Readers for one

1. Modern Technique of information Retrieval with first hand

knowledge in the operation of online information.

For 2nd post.

2. Modern Cataloguing techniques and operations of special Libraries.

Library Management.

Lecturer—4 posts

For Lecturers

(a) Practicals Theoretical aspects of bibliographical classification.
(b) Practicals Theoretical aspects of Cataloguing.
(c) Historical and Systematic Bibliography
(d) Reference sources and services.

Administration and operation of Academic Libraries.

Group-B. Name of the Department

1. **Chemical Engineering**
   Reader— 2 posts.
   Lecturer—5 posts.
2. **Applied Physics**
   Reader— 1 post.
   Lecturer—1 post.
3. **Chemical Technology**
   Lecturer—2 posts.
4. **Plastic & Rubber Technology**
   Lecturer—2 posts.
5. **Anthropology**
   Reader— 1 post.
   Lecturer—6 posts.
6. **Geography**
   Reader— 1 post.
   Lecturer—1 post.
7. **Statistics**
   Reader— 1 post.
   Lecturer—2 posts.
8. **Zoology**
   Reader— 2 posts.
   Lecturer—1 post.
9. **Geology**
   Reader— 1 post.
   Lecturer—1 post.
10. **Physiology (Sc)**
    Lecturer—3 posts.
11. **Chemistry**
    Reader— 1 post.
    Lecturer—2 posts.
12. **Bio-Chemistry (Sc)**
    Lecturer—1 post.
13. **Home Science**
    Lecturer—8 posts.
    (Including the vacant post in Food and Nutrition)
14. **Botany**
    Lecturer—4 posts.
15. **Physics**
    Reader— 1 post.
    Lecturer—2 posts.
16. **Electronic Science**
    Reader— 4 posts.
    Lecturer—3 posts.
17. **Applied Psychology**
    Reader— 1 post.
18. **Radio Physics & Electronics**
    Reader— 1 post.
    Lecturer—3 posts.
19. **Applied Mathematics**
    Lecturer—1 post.

Group—C. Name of the Department

1. **Anatomy**
   Reader— 1 post.
2. **Medical Microbiology & Parasitology**
   Reader— 1 post.
3. **Pharmacology**
   Reader— 1 post.
   Lecturer—1 post.
4. **Bio-Chemistry (Med.)**
   Lecturer—3 posts.

Group—B. Specialisation

Applied Physics.

Reader— 1 post.
Lecturer—1 post

M.Tech/M.E.(I) Electrical Mechines & Power System or Measurements & Instrumentation or Optics and Optoeletronics M.Tech /M.E. Electrical Machine & Power System.

Radio Physics and Electronics

Reader— 1 post.
Lecturer—3 posts.

For Reader; **Specialisation** in any one or more of the following fields of Radio Physics & Electronics, viz.,
(a) space Science, (b) Solid State Electronics (c) Microwave Electronics (d) Plasma and Quantum Electronics, (e) Bio Electronics (f) Control Engineering (g) Microprocessors and Computer Hardware) (h) Communication Engineering.

Specialisation

For Lecturers : same as Reader.

Statistics

Specialisation for Reader
Demography.
Specialisation for Lecturers (I) **Essential**—Demography.

Desirable : Knowledge of Computer Programming Stochastic process and design of experiments.

For 2 Essential Econometrics and Stochastic Processes.

Chemistry

For Reader, Specialisation in Organic Chemistry in Natural Products.
For Lecturers one in Physical Chemistry, & other for Inorganic Chemistry.

Home Science

Lecturer—8 posts.

1. M.Sc. in Bio-Chemistry with Ph.D. special paper in Microbiology.

2. M.Sc. in Food and Nutrition or Physiology with Ph.D. special paper in Nutrition or in Bio-Chemistry.

3. M.Sc. in Physiology with Ph.D. Special Paper in Nutrition or Bio-chemistry.

4. M.Sc. in Chemistry with Ph. D. special paper in Organic Chemistry.

5. M.Sc. in Food and Nutrition/ Chemistry Organic/Food Technology with Ph.D. Special Paper in Food Chemistry, 5 years teaching experience at P.G. level.

6. M.A in Bengali, Ph.D. or at least 10 years teaching experience at Under-Graduate level.

7. Master's Degree in Arts & Crafts specialisation in Visual or Fine Arts, 5 years teaching experience at U.G. level.

8. Master's degree or equivalent in Textile and Laundry. 5 years experience at U.G. or equivalent level.

Applied Psychology

Reader—1 post

Psychometry/Management Psychology and Organisational Behaviour.

Physics

Lecturers—for one post in 'X' Ray and Crystallography and the other post in 'Electronics'. Both the incumbents should have background in the Solid State Physics.

Group—C

Specialisation

Medical Microbiology & Phrasitology

Reader—1 post

"Bactriology, Immunology Mycology".

Pharmacology

Reader—1 post

Lecturer—1 post

M.D. (Pharmacology) D.M. (Chemical Pharmacology) will be additional qualifications.

Bio-chemistry

Lecturer-3 posts.

1. Clinical Biochemistry (One Post)
2. Molecular Biochemistry (One Post)
3. Nutritional Biochemistry (One Post)

For Group A B C

The selected candidates will be placed on probation for one year which may be waived in exceptional cases. The appointment shall be subject to the rules laid down for the teachers from time to time.

Applications (Seven copies) in prescribed form (obtainable from the University Sales Counter on payment of Rs 10/- or by post on sending a self-addressed Re. 1/- stamped envelope of 28 cm x 12.5 cm. size with a crossed I.P.O. of Rs. 10/- payable in the name of Calcutta University) should reach the undersigned not later than **27th May, 1988**.

For persons applying from abroad, submissions of applications in the prescribed form is not necessary. Such candidate may submit seven typed copies of detailed biodata with an application fee of Rs. 10/- within **27th May, 1988**.

Candidates who had applied in response to previous advertisements of 1984 and 1985 need not apply again in the prescribed form but they are advised to send on plain papers additional information, if any, together with a fresh biodata in support of their respective candidature indicating therein the exact post(s) for which they had applied and now desire to be considered

P.K. Chowdhury
DEPUTY REGISTRAR (Admn.)

S.K. PATIL SINDHUDURG MAHAVIDYALAYA
&
RAMBHAU PARULEKAR JUNIOR COLLEGE, MALVAN
Dist. Sindhudurg, Pin-416 606
WANTED

Applications are invited for the posts of lecturer in the following subject in the Degree College :

Sr. No.	Subject	No. of Posts	Full time/ Part time	Posts reserved for SC/ ST/DT/NT	Dereserved after three advertisements	Open
1.	MARATHI	1	Full time	SC	1	—
2.	ECONOMICS	1	Full time	—	1	—
			Part time	Likely depending on number of students.		
3.	GEOGRAPHY	1	Part time	ST	1	—
			(Likely to be made full time depending on work-load)			
4.	BUSINESS LAW	1	4 periods Hourly Basis (Likely to be made part time)	SC	—	—
5.	ACCOUNTANCY	1	C.H.B.	—	—	—
6.	ECONOMICS	1	Full time	—	—	—
			(Substitute Appointment for one year under U.G.C. FIP.)			

Total number of posts advertised : 07

Though the posts are reserved as above, B.C. candidates will be preferred for all the posts (except No.6) as the backlog is to be filled in.

The last date for receipt of applications is the date after **fifteen days** of publication of this advertisement.

(a) The qualifications and pay-scale(s) for the post(s) are as prescribed by the University of Bombay. The details of qualifications, pay-scales and allowances will be supplied on request.

(b) Applicants who are already employed are required to submit their applications through proper channel.

(c) Applicants are required to account for breaks, if any, in their academic career.

In case candidates from reservation category are not available, candidates from open category will be considered for temporary appointment.

Applications with full details (Bio-data, Caste-certificate and true attested copies of marklists of H.S.C., Graduate & Post-Graduate Degree Examinations) should reach the undersigned as above.

NORTH EASTERN HILL UNIVERSITY
LOWER LACHAUMIERE : SHILLONG

No. Advt/P-1/88-1060
Dated : the 21st April, 1988

Applications on prescribed form are invited for the following posts in the Computer Centre of the North-Eastern Hill University, Shillong so as to reach the Registrar, NEHU. Shillong-793001 alongwith a crossed Indian Postal Order of Rs. 10/- (not applicable for SC/ST candidates) payable to the North-Eastern Hill University, Shillong-793001 by **31st May, 1988.**

1. **Prof. of Computer Science**
   Rs. 4500-7300/- (Revised).

Educational background required : Ph.D. in Computer Science/ Technology; Experience in hardware or software.

Or

Ph.D. in Electronics, Elec. Engineering, Physics or Mathematics may be considered provided they have good computing experience.

2. **Systems Engineer (2)**
   Rs. 1100-1600/- (Pre-revised).

Educational background required : (1) (Master's level degree in Computer Technology or Electronics with specialisation in Computer hardware; with experience.

(2) Master's level degree in Computer Science with specialisation in software engineering; with experience.

3. **System Analyst :** Rs. 700-1300/-
   (Pre-revised).

Educational background required : Graduate in Mathematics/Physics Statistics/ M.C.A. with experience in FORTRAN—IV/77 preferably in main frame computer systems, knowledge of JCL of IBM 370 series computer statistical package is desirable.

4. **Programmers** : Rs. 700-1300/-
   (Pre-revised),

Educational background required : (1) Master's/Bachelor's level degree in software engineering.

(2) Master's level In the applications area.

5. **Computer Operators**
   Senior—Rs. 550-900/- (Pre-revised).
   Junior—Rs. 425-700/- (Pre-revised).

Educational background required : (Senior).

(a) Master's level degree in Science subjects with experience in the field of Computer Operations/applications.

Or

(b) Bachelor's level degree in Science subjects with experience in the area of Computer operations/applications.

(c) Bachelor's level degree in Commerce/Arts subject with a minimum of 2 years experience In the area of Computer operations/applications.

(Junior)

(a) Bachelor's level degree in Science with experience in the field of Computers.

Or

(b) Graduate in Commerce/Arts subjects with experience in the area of computer operations/applications.

6. **Key Punch Operator : Rs. 260-400/-**
   (Pre-revised).

Educational background required : High School with special training in Key Punch Operation necessary.

7. **One Trainee Programmer**
   Rs. 1000/- p.m. fixed (ordinarily for one year but not more than two years)

   Educational background required : P.G. Diploma in Computer Programming. Knowledge of FORTRAN-IV, COBOL, etc. Degree in any discipline.

8. **Two Trainee Operators** : Rs. 800/- p.m. fixed.

Educational background required : Graduate in any discipline.

NOTE : Candidates already in service should send their applications through proper channel. An advance copy may however be sent direct.

Applications received after the due date will not be entertained. A person applying for more than one post should send a separate application for each post.

The University reserves the right to negotiate with suitable persons who may not have applied formally. The University also reserves the right to fill up or not to fill up the post or to call only selected candidates for interview. The number of posts may vary

Application forms can be obtained from the Section Officer, Establishment I (B) Branch, North-Eastern Hill University, Shillong-793001 personally on payment of Rs. 2.00 or by mailing a written request to him accompanied by self-addressed stamp envelope of 23 x 10 cm. and a Postal Order for Rs. 2.00 drawn in favour of North Eastern Hill University, Shillong-793001.

D.C. Pant
REGISTRAR

PANJAB UNIVERSITY
CHANDIGARH

(Advertisement No. 5/1988)

Applications are invited for the following posts so as to reach the Registrar' Panjab University, Chandigarh along with postal orders of Rs. 10/- by **3.6.1988.** Fourteen days extra time is permissible to persons who have to submit their applications from abroad.

I. **Professors :** Rs. 4500-150-5700-200-7300 (Revised)
   Botany-2, Anthropology-1, Chemical Engineering & Tech.-3 (Chemical Engineering-2; Chemical Tech.-1).

II. **Readers :** (Rs. 3700-125-4950-150-5700) (Revised)
   Botany-2, Zoology-2, (Cell Biology-1, Parasitology/Fish & Fisheries-1), Physics-1, Chemical Engineering & Tech. (Chemical Engg.)-1, Pharmaceutical Sciences-2 (Pharmacognosy-1, Pharmacology-1).

III. **Lecturers :** (Rs. 2200-75-2800-100-4000). (Revised)
   Chemistry (Organic Chemistry)-1, Anthropology (Social Anthropology)-1 (Temp.-Leave vacancy), Chemical Engineering & Technology (Chem. Tech.)-1

IV. **Lecturer-cum-Assistant Librarian:** (Rs. 700-40-1100-50-1600) Library Science-1.

V. **Research Associates:** (Consolidated emoluments ranging between Rs. 1400/- and 2000 p.m. (fixed) depending upon the qualifications and research experience and contingent grant of Rs. 5000/- per annum for approved contingent expenditure).
   Zoology-2, (Aquatic Biology, Limnology and Ichthyology-1 and Parasitology)-1.

VI. **Senior Research Fellows:** (Rs. 1200/- p.m. (fixed) with an annual contingent grant of Rs. 3000/-)
   Chemical Engineering & Tech.-1

Note 1. The Vice-Chancellor could place before the Selection Committee names of suitable persons for its consideration alongwith the applications received in response to the advertisement.

2. It is not obligatory on the part of the University to call for interview every candidate who possesses the essential qualifications.

3. The number of vacancies may change.

4. The University may also prepare panels of suitable candidates for appointment against vacancies occurring within a specified period.

10% of the Fellowships will be reserved for Scheduled Castes and Scheduled Tribes candidates provided they fulfil the minimum qualifications laid down for the award of such Fellowships. In case qualified candidates are not available the reserved Fellowships will be treated as unreserved. **The candidates for Fellowship whose results for the qualifying examinations are not declared by the closing date, may also apply. Howeuer, they must intimate their results (if otherwise eligible) to the concerned Department before the date fixed for selection.**

Candidates for the posts of Professors and Readers who do not possess a dotoral degree are required to submit 10 typed cyclostyled copies of brief resume of their published work. The candidate has the option to fill this form in all respects on both sides and to attach 9 photostat copies thereof. The candidates are also required to attach 10 copies of the list of their research publications with their 'summary Biodata'.

15% posts of Lecturers will be reserved for the members of the Scheduled Castes and $7^1/_2$% for the members of the Scheduled Tribes, but these will be treated as unreserved if no suitable Scheduled Castes/Scheduled Tribes applicant is available.

Persons already in service must route their applications through proper channel. They may, however, send an advance copy of their application, on the prescribed proforma, direct to the University. They will be allowed to present themselves for interview only on the production of a 'No Objection Certificate' from their employers. Incomplete forms will not be considered. Forms received after the due date are liable to be rejected, unless the Vice-Chancellor condones the delay by a special order. Attested copies of certificates in support of qualifications for Matriculation/School Leaving, Graduation, Post-graduation examination as also for Doctorate degree, be attached to the application. Canvassing in any form will disqualify the candidate.

Application forms, along with detailed qualifications can be obtained from the Cashier, Panjab University, Chandigarh, personally, on payment of Rs. 2/- or by making a written request to the Assistant Registrar (Estt.), Panjab University, Chandigarh, accompanied by a self-addressed stamped (worth Rs. 3.40) envelope of 23 x 10 cm and postal order of Rs. 2/- drawn in favour of the Registrar, Panjab University, Chandigarh.

ASSAM AGRICULTURAL UNIVERSITY

ADMISSION NOTICE No. 1/88

Applications in prescribed Forms are invited for admission into the following degree programmes of the University in the Faculty of Veterinary Science, Assam Agricultural University, Khanapara, Guwahati-781 022 under course credit system for the session 1988-89 commencing from the 27th July, 1988.

(A) M.V.Sc. Degree Programme in the Disciplines :

1. Animal production and Management
2. Animal Genetics and Breeding
3. Animal Nutrition
4. Veterinary Surgery and Radiology
5. Animal Gynaecology, Obst. & A.I.
6. Veterinary Medicine, Public Health & Hygiene
7. Animal Physiology
8. Animal Pathology
9. Animal Parasitology
10. Veterinary Microbiology
11. Extension Education
12. Veterinary Pharmacology
13. Veterinary Anatomy & Histology

(B) Ph.D. Degree Prrogramme in the Subjects :

1. Animal Production and Management
2. Animal Nutrition
3. Animal Gynaecology, Obst. & A.I.
4. Veterinary Medicine, Public Health & Hygiene
5. Veterinary Microbiology
6. Veterinary Parasitology
7. Veterinary Pathology
8. Veterinary Physiology
9. Veterinary Surgery & Radiology
10. Anatomy & Histology

Minimum Qualification for Admission

(A) M.V.Sc. Degree Programme

A candidate must have passed the B.V.Sc. & A.H. degree examination of this University or any other recognised University securing minimum OGPA of 2.60 in 4.00 scale or its equivalent or minimum of 50% marks in aggregate (In traditional system) in the qualifying examination (s). This requirement is however, relaxable to an OGPA of 2.50 or 45% marks in the case of SC/ST candidates and for candidates having atleast 2 years of professional experience provided further that the minimum OGPA may be relaxed for candidates who are deputed from the State Govt. of Assam and who have atleast five years of service experience after obtaining B.V.Sc. & A.H. degree which shall either be an OGPA of 2.30 in 4.00 scale or 42% marks in aggregate (In traditional system) in the B.V.Sc. & A.H. examination.

Ph.D. Degree Programme

A candidate must have passed the M.V.Sc. degree examination of this University or any other University recognised by this Uniersity. A candidate must have obtained a minimum OGPA of 3.00 in 4.00 scale or 55% marks in aggregate under traditional system in the M.V.Sc. examination. This requirement is however, relaxable to an OGPA of 2.85 in 4.00 scale or 50% marks in aggregate under traditional system for the deputed candidates having 5 years of service experience after obtaining Master's Degree.

How to Apply

Application forms of the above degree programmes may be obtained from the Office of the Director of Post Graduate Studies, Assam Agricultural University, Khanapara, Guwahati-781022 on payment of Rs. 5.00 (Rupees five only) in terms of crossed Indian Postal Order drawn in favour of the Director of P.G. Studies, Assam Agricultural University, either personally or by sending a self addressed stamped envelope of size 10 x 22 cm. affixing postal stamp of Rs. 1.50 (Rupee one and paisa fifty) only.

Last Date of Receipt of Application

The application in prescribed Form complete in all respect must reach the Director of Post Graduate Studies, AAU, Khanapara, Guwahati-22 on or before **31st May, 1988.** Candidates who are employees of the State Govt. or any other organization must apply through proper Channel.

Interview

Candidate fulfilling the minimum academic requirements shall have to appear before Selection Committee as and when called for at their own expenses.

Selected candidates who are employees of the State Govt. or any other organisations shall have to furnish a copy of the order of deputation/or release from the Govt./Employer at the time of admission.

In connection with Ph.D. programme, the University reserves the right to refuse admission in the Subject (s) in case there is shortage of qualified teachers in the concerned department at the time of admission.

Application for admission into University Hostel shall have to be made in separate prescribed Forms. Admission into Hostel shall be subject to availability of Seats.

REGISTRAR

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University News

MONDAY, MAY 16, 1988 Rs. 1.5

महात्मा फुले कृषि विद्यापीठ
अन्नं बहु कुर्वीत तद् व्रतम्
चौदावा
दवीदान समारंभ
FOURTEENTH
ONVOCATION
27th March 1988
महात्मा फुले
कृषि विद्यापीठ
MAHATMA PHULE
AGRICULTURAL UNIVE

Shri Bhagwantraoji Gaikwad, Pro-Chancellor and Minister for Agriculture, Maharashtra State, delivering his address at the 14th convocation of the Mahatma Phule Agricultural University. Seated on his right is Dr. N. G. Perur, Vice-Chancellor of the University.

वृन्दावन शोध संस्थान, वृन्दावन के प्रकाशन

Publications of the Vrindaban Research Institute,
Raman Reti, Vrindaban (Mathura) Pin-281124

1976	1.	A Catalogue of Sanskrit Manuscripts in the Vrindaban Research Institute, Part I.	Rs. 95-00
1978	2.	A Catalogue of Sanskrit Manuscripts in the Vrindaban Research Institute, Part II.	Rs. 110-00
1978	3.	A Catalogue of Bengali Manuscripts of the Vrindaban Research Institute.	Rs. 65-00
1978	4.	Photographic Documentation of the Braj Area, a list of colour slides taken during the IAVRI Research Project 1978. (published by International Association of the Vrindaban Research Institute, London).	Rs. 50-00
1979	5.	A Catalogue of Hindi Manuscripts in the Vrindaban Research Institute, Part I.	Rs. 65-00
1981	6.	A Catalogue of Sanskrit Manuscripts in the Vrindaban Research Institute, Part III.	Rs. 125-00
1981	7.	'An Early Testamentary Document in Sanskrit' by Tarapada Mukherjee and J. C. Wright.	Rs. 10-00
1982	8.	A Catalogue of Manuscripts Microfilmed by the Vrindaban Research Institute.	Rs. 85-00
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1986-87	12.	केवलराम कृत "रासमान के पद" सं० ऐलन एन्टिवस्टिल	रु० 30-00
	13.	Rasman ke Pad—English Version (अंग्रेजी भूमिका)	रु० 45-00
1987-88	14.	स्वामी चरणदास कृत-रहस्य-दर्पण एवं रहस्य चन्द्रिका सम्पादक-डॉ. रामदास गुप्त —डॉ शरणविहारी गोस्वामी	रु० 45.00 सजिल्द रु० 60.00

The order may please be placed

Director, Vrindaban Research Institute,
Raman Reti, Vrindaban 281124

MAY 1988
C. F. T. R. I., MYSORE

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Editor :
SUTINDER SINGH

Sports in Society and Higher Education

G .S. Sivia*

Introduction

Sport is a social phenomena. To quote New Encyclopaedia Britannica, "History of Games is a part of the history of man as a social animal." Many phrases like : hitting below the belt, the games they play, this is not cricket, I had my innings, have their origin in the field of sports. In ancient Greece, wrestling was governed by conventions and not by written rules. Like in Love and War, everything was fair except hitting below the belt. From there, the phrase began to be used for unfair means or fraudulent practices. Now about games, historically speaking, 'game theory' was evolved in 1921 by a French Mathematician, Emile Berel. seeking to analyse and solve the problems arising in economic, business and military situations, each participant adopting strategy to maximise gain and minimise loss. In due course of time, the term trickled down as a sport terminology and is now used to mean a sport event, though in its original sense, it is a strategy or an abstract mechanism evolved for winning a match. In its contemporary usage the term is also being applied for 'intrigues' and manipulations when it is used in the phrase, 'games they play'.

Society, as MacIver put it, "is an ever changing complex system interwoven into a web of social relationships". It is a wide ranging intricate spectrum of social relationships which is undergoing a constant process of change under the influence of a multitude of factors like geography, biology, genetic changes, means of production, science and technology, culture etc. The social changes bring in changes in beliefs, customs, traditions, philosophy, concepts etc. From pre-historic cultures to contemporary times, concepts of many social and cultural terms have drastically changed. Since sport is an integral component of society, what it stands for in the current usage is entirely different from what it stood for in the primitive cultures.

Changing Concept of Sports

Pre-historic Man lived in what Hobbs, Lock and Rousseau called as the "State of Nature". Survival depended upon his mastery of skills, like, running, stone throwing, jumping, hunting, skipping etc. Personna Year Book of Sports, 'described the art of jumping rushing waters, wielding spear etc. as tools of survival. Sport in the pre-historic cultures, therefore, filled up the industrial void and played the role of 'means of production'.

When nomadic tribes settled down permanently within a certain territorial jurisdiction they developed their identifiable culture. The most classical example is that of the ancient Greeks. At that period of History, Man was too superstitious, believed in the predetermined destiny and was extraordinarily fearful of goods and deities. He believed prosperity came as a result of pleasing the natural objects which for

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Deputy Secretary (Sports), Association of Indian Universities.

him were synonymous with God. Sport and dance in those days began to be organised as a part of the religious ceremonies and rituals celebrated to honour the gods. Besides, sport, in the ancient Greek culture, was used as media of brotherhood, fraternity and friendship. The ancient Olympic Games, organised at a periodicity of 4 years, in honour of Zeus (the most powerful Greek God) and as platform of ending hostilities by signing 'Truce' for the period of the Games is a living example of this place of sport in the ancient times.

During the period of the Roman Empire social ethics had degenerated to the lowest ebb. The social evils had infiltrated into the field of sport also. Homer in one of his literary works, remarked, "Of all the evils in Hellas, the athletes are the worst". Indulgence in malpractices in sports led to the closure of the Olympic Games by the Roman Emperor, Theodosius-II in 374. Abandoning of the Olympic Games, therefore, was of social consequence.

In Medieval period social structure horizontally divided into feudal lords and the serfs. Knighthood was an integrated institution of the society. The young ones of the feudal lords were conferred 'Knighthood' through a ceremonial procedure. Before that they were given training in chivalrous sports like horse riding, archery, sword fighting, mace wielding etc. The lords and the kings took interest in hunting. The Middle Ages sport, therefore, had a different complexion. It was a recreational pursuit for the lords and the kings and a hard training in chivalry for the youth. The focus, however, shifted to 'pastime' during the 19th century Industrial Revolution era. Scientific inventions revolutionised the production system and considerably reduced the working-hours. As idle brain is a Devil's workshop, need to engage the industrial workers in meaningful activity during the leisure time arose. It resulted in a tremendous growth of club activity and, through the club system, of the modern competitive sport; though sport during those days remained only a pastime engagement. Contemporary social environments, particularly its value scales, have drastically changed under the impact of science and technology and its application in industry. Every human activity is measured in terms of monetary returns. Human relations have become impersonal. Concept of sports is in a transitional phase because of these changes in the social relations. Modern sports has multi-dimensional facts :

(a) for children it is play;

(b) as a club activity, it is recreation;

(c) it is a leisure pursuit for the spectators and for those who watch sport programmes on television or read 'sports columns';

(d) it is a business for sponsors and sports goods manufacturers;

(e) it is a vocation for those who take up sports seriously for international achievements.

Modern sports, therefore, has taken roots in different areas of social life with different focus in every case. It is no longer a mere pursuit only of those who take part in sport as competitors. The historical introspection of the place of sports in the social structure leads to the conclusion that 'sport' is an integrated component of society and its concept and role in the society has been changing with the changing times.

Sports in Higher Education

Higher Education as a phenomenon is mainly a growth of the 16th and 17th century renaissance period which conceived universality of Man and regarded human personality as an embodiment of multifarious talents and interests in art, literature, science and other social pursuits like sports. Renaissance, which is considered as a wave of revival of the classics of the ancient Greeks whether art, literature or philosophy viewed education as a system of harmonious development of the above mentioned faculties. Sport as a component of higher education, therefore, has been considered as a contributory discipline for the allround development of human personality. Even contemporary system of education in India believes in this philosophy. Aurobindo Ghose provided equal weightage to art, science, philosophy and sports in his education system. The curriculum of his Pondicherry Ashram school is devised on this basis. For Rabinder Nath Tagore, there is a deep connection between the body and the mind and the rhythm of life was broken if harmony was not developed between the two. India has inherited the British-system of higher education of the 18th and 19th century industrial revolution which revolved round the philosophy of education as advocated during the renaissance movement. Obviously, the role given to sport in India in the higher education sector is that of an integrated component aiming at coordinated development of mental, physical and spiritual aspects of personality. With this in view, New Education Policy

1986 lays great emphasis on the role of sports in higher education and regards sport as an integral part of the learning process. To achieve this objective, New Education Policy envisages a nation wide infrastructure of sports and games as also insight for the encouragement of those talented in games and sports. To realise the aims and objectives of sports, within the framework of Higher Education and the objectives enunciated in the New Education Policy, a number of sports schemes have been floated :

(i) A substantial layout has been provided in the 7th Plan period for the construction, development and improvement of sports facilities in universities and colleges.

(ii) The scheme of Sports Talent Scholarships (S.T.S.) provides for awarding 300 fresh scholarships per year of the value of Rs. 3,600/- each to talented university students. These scholarships are renewable in subsequent years subject to maintaining the level of performance.

(iii) There is a scheme which provides for organising 80 coaching per year camps at the University level.

(iv) Financial assistance is available for organising inter university tournaments and for selection and training of Indian Universities teams.

(v) Services of coaches who are on the pay roll of the Govt. of India are available to coach talented university sportspersons through the system of Field Stations.

AIU has proposed a couple of new schemes, in the light of the emphasis given to sports in the N.E.P. These are :

(a) Introducing physical fitness programme in universities and colleges.

(b) Building University Sports Hostels.

(c) Organising Training Camps for university teams prior to their participation in the Inter-University Tournaments.

Contemporary Sport

In contemporary times sport is becoming a big commercial venture. A beginning was made in this direction about 100 years ago when spectators began to be charged gate entries. By the middle of 19th century, gate collections began to be a big income, Modern sport, however, has still two distinct categories: professionalism and amateurism. Sports like horse racing involving a sizeable army of professionals—jockeys, trainers, trappers etc., are organized exclusively on commercial lines. Advocates of the other category which includes disciplines mostly of the Olympic Umbrella, however still continue to support the ideology of 'amateurism' and are reluctant to admit them as business ventures, though sizeable commercial enterprise is involved in organization of these games as well. Recent developments have created a nexus between sport and industry. Factors like sponsorship, media, technology and even the law have combined to bring about a radical change in the economic structure of sports. The high cost of running a modern sport event is met mainly by massive income from sponsorship, television and broadcasting rights, gate collections, hoardings, logos, Video screens and Government grants. Income from non-sport sources is increasing and in western societies it has become more than 50% of the total receipts. Sponsorship now brings huge returns to the international super stars. Many big industries are spending millions of dollars in sponsoring almost all the sporting events from Golf and Car Racing to Woodchopping and Darts. Briefly summed up, commercialism has greatly increased the market value of sport and its main characters such as players, referees, administrators etc.

Conclusion

As detailed in the foregoing paragraphs, concept of sport and its role in the social structure, of which, higher education is an important part, has been changing with the changing social structure during the course of history. In the modern life, industrial and commercial houses are playing increasingly important role in the sports structure. In the Western culture, their role has already gone deep rooted in society but in countries like India, it is growing as an emerging force. Professionalism in sport, regarded as that worst evil at one time and which destroyed the ancient Olympic Games, is now being accepted as a reality. In fact, in some of the important sports today such as Cricket, Basketball, Tennis, Badminton, Boxing etc., professionalism has made deep inroads. In other sports which are still characterised as amateur, it is coming up in a big way. The direction is unmistakably in favour of professionalism. We have, therefore, to revise our concept of sport in contemporary social structure and have to define it within the framework of the emerging influence of science and technology in the sports spectrum. ☐

BANASTHALI VIDYAPITH
Origin, Growth and Present Position

P.N. Mathur*

Banasthali's (Banasthali Vidyapith's) origin lies in pathos which aroused the purest and the tenderest emotion of paternal love vitalised by Shastriji's (Hira Lalji Shastri's) will-power and courage of conviction and his practical wisdom and capacity to transform a vision into actuality. This concept of Banasthali took form in an ethos of love, devotion and dedication for the Nation whose pressing need at that particular time was attaining freedom. Another thing that from the very beginning pervaded Banasthali-thinking was Indian Culture.

Concept and Importance of love for the Nation are self-evident and need no elaboration. But the importance and concept of culture require some elucidation. Culture is an overall approach to life which is expressed in civilization. Culture is the spirit and civilization is the form. A people's approach to life evolves on the basis of several factors dealing with its natural environment, its history, its problems, opportunities, potentialities, its ambitions and the actions and interactions of the people to these various factors. Naturally all people in the world cannot have one culture. Living cultures are not exclusive but inclusive and a process of give and take always takes place between them. And it is this inclusive nature of cultures which makes it possible for them to live together in an overall harmony.

So Banasthali was, on the one hand, established in a nationalist ethos which manifested urge for India's freedom and, on the other, it also had before it a vision of Indian culture. Thus Banasthali's whole architecture stood upon the two foundational pillars of National spirit and Indian culture. And the educational thought and programme that Banasthali has developed kept before it the above two strains of thought : Love for the Nation and Values of Indian Culture.

Now it was on this basis that Banasthali thought of a comprehensive educational programme known as Panchmukhi Shiksha (five-fold education). Indian culture being in its nature inclusive, Banasthali's five fold education accords due place to all aspects of life and considers moral-spiritual attitude as the right attitude to life. Indian culture stands for the full richness of life and not for a dry and austere existence where life in the world is taken as a burden and the aim of life is to get relieved of it. In the four stages of life (Brahmacharya, Grihastha, Vanprastha and Sannyas) conceived by India, the Grihastha Ashram, where one lives a balanced but rich worldly life conscious of one's duties and responsibilities towards society, has a pivotal importance. And it is preparing for such a full and devoted life that Banasthali's Punchmukhi Shiksha (five-fold education) was planned. This Panchmukhi Shiksha envisages physical education aiming at the full care and development of man's body, practical education aiming at the full care and development of man's vital part of life, aesthetic education aiming at proper care and development of man's sense of beauty, moral education aiming at proper care and development of man's goodness and intellectual education aiming at proper care and development of man's mental powers. The whole emphasis of Vidyapith's Panchmukhi Shiksha is on the development of an all-round personality.

The Challenge

So long as India was groaning under the pangs of slavery, love for the nation and working for its independence had an overall priority in its education. But after independence Indian education faces new challenges. Besides preserving and safeguarding country's integrity and independence and transforming the nation into a really free society in which freedom, dignity and equality of an individual are guaranteed, it has also to reorient itself to our cherished ideals in all fields of life, especially in the field of different branches of knowledge including social life and physical sciences.

In our programmes of physical, practical, aesthetic and moral education, from Vidyapith's very inception we have preserved the Indian contributions in these fields. And we are keen that these contributions in the flood of the 'new' do not go into oblivion and

(*Continued on page 9*)

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Conflict Resolution in Management of Colleges

R. Kanagasabapathy*

Principals, when appointed from among the teachers of colleges, may be said to have changed their roles from technical to managerial. As teachers, they are mainly concerned with giving lectures, setting question papers, valuing answer papers, doing research, etc......all under technical role, and now as Principals, they have to manage men, money and material. The basic difference between the two roles is accountability. In a technical role, one is accountable for his performance only; but in the managerial role, he is accountable for the work of all under his control. For the colleges to function effectively, Principals should well play their leadership role :

> "Leadership is an important aspect of management and it is defined as the art or process of influencing people so that they will strive willingly, enthusiastically towards the achievement of organisational goals......leaders do not stand behind a group to push and prod, they place themselves before the group as they facilitate progress and inspire the group to accomplish organisational goals. An example is that of an orchestra leader, whose function is to produce co-ordinated sound, correct tempo through the integrated effect of the musicians. Depending upon the quality of the director's leadership, the orchestra will respond" (Koontz et al, 1982).

The fundamental principle of leadership is said to be : to provide sufficient motivation to all the people working under him. A College Principal may have to motivate the teaching staff, the non-teaching staff, and the students. There are several theories of motivation. One common theory is "The carrot and stick" (Reward and Punishment). Reward can be given to different categories of personnel in different forms. It is well to remember that though money is not the only motivating force, it continues to be an important one. Altuism is also an important motivating power among teachers. For the non-teaching staff, job-security and esteem needs may be good motivating factors (Maslow's hierarchy needs). The 'stick' continues to be a good motivating power, yet it is admitted that it is not the best kind. For the students, besides the carrot and stick, Vroom's theory of motivation may be applicable. In its modified form, motivation is the product of the vision one has and the confidence that he develops that he could achieve the vision.

When speaking of motivation, one has to imagine the position of the Principal who is bogged down by the daily occurrences in the college and then one is tempted to murmur : Running the college smoothly for a day is a problem......when struggling to maintain the status quo, how do we aim at excellence ? Conflicts between students and teachers, students and non-teaching staff, students and the public, students and students, etc. etc. are to be tackled periodically in colleges.

What is conflict ? If two persons disagree, it is not conflict. If the two always disagree, it is conflict. Disagreement recurring is known as conflict. Conflict is inherent in human life and it is a part of life itself. It is said that conflict and collaboration are parts of the organisational process and are two sides of the same coin.

Conflict may be functional or dysfunctional. It is only through divergent and conflicting views and disagreement that creative work takes place, particularly in educational and research institutions. In that case, the conflict is functional. It is dysfunctional if it reduces the productivity.

It is classified that generally conflict arises due to the following factors :

(a) Lack of resources or having limited resources with competing demands
(b) Differences in values/goals—ideological conflicts
(c) Lack of proper communication
(d) Ambiguity in role and responsibility
(e) Certain roles have built-in pre-dispositions for conflict.

In my experience as the Principal of a Postgraduate college affiliated to Madurai Kamaraj University for about 23 years, I have faced many problem situations and I have given serious thought to the problem of conflict resolution. I have read theories of conflict resolution as applicable to business and industrial establishments, and the following theories given by Stephen (1977) appeal to me, as the best suitable for

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Principal, Aditanar College of Arts and Science, Tiruchendur, Tamil Nadu.

ducational institutions :

> "There are five basic theories, as those appearing at the four corners and the centre of the diagram depicting the conflict Grid. When these basic styles are understood, one can predict for each how a man operating under that style is likely to handle conflict. No one style is exclusively characteristic of one man in comparison with another although one style may be dominant in a man's actions. Furthermore, even though one may be dominant for a time, it may be abandoned and replaced by another when the first has been ineffective in achieving the resolution".

Conflict can be controlled by overpowering it and suppressing one's adversary (9,1 in the lower right corner of the Grid). An ultimate expression of this is in the extremes of police power and military action. Extracting compliance by authority—obedience is possible when rank is present. The conflict can be cut off and suppressed in this way, "Yours is not to question why !"

Another strategy is to smoothen conflict by cajolery, by letting a man know that with a little patience he will find that all is right (1,9 in the upper left corner). The assumption of sweetness and light often leads to resolution by people's retracting from previously held positions, preferring personal acceptance to solution validity. This can promote accord and harmony, but it sacrifices conviction and insight into difference, while decreasing the likelihood of achieving valid solutions.

Staying out of situations that provoke controversy or turning away from topics that promote disagreement represents a set of assumptions about how to live in a conflict-free way (1,1 in the lower left corner). Then one need not be stirred up even though the issue may need resolution. A man can remain composed if he does not let himself be drawn into controversy; he avoids it by remaining neutral. This kind of "see no disagreement, hear no disagreement, and speak no disagreement" represents a withdrawal from social responsibility in a world where the resolution of differences is key to finding sound solutions. It is the ultimate in alienation.

Another set of assumptions leads to middle-of-the road solution to differences throught accommodation and adjustment. Disagreement is settled through bargaining a compromise solution (5,5). The assumptions underlying compromising one's convictions are at the root of this approach. It means agreeing so as to be agreeable, even to sacrificing sound action; settling for what you can get rather than working to get what is sound in the light of the best available facts and data.

Under a (9,9) approach, disagreement is valued as an inevitable result of the fact that strong-minded people have convictions about what is right. A man says, "Nothing is sacrosanct. What are the facts ? What are the causes? What are the conclusions ?" Reservations and emotions that interrupt agreement based on logic and data are confronted through candid discussion of them directly with the person involved in the disagreement. Insight and resolution are possible but involve maturity and real human skill. This approach may be time-consuming in the short run but time-conserving over the long term. It permits men to disagree, to work out their disagreements in the light of facts, and ultimately to understand one another.

Men capable of resolving their conflicts thus would forward human progress with a dramatic thrust—and on a far more fundamental and therefore enduring basis.

The problem of conflict resolution was discussed at a workshop for Hostel Wardens organised by the Department of Youth Welfare of Madurai Kamaraj University at Madurai during January 1987. The hostel wardens present were of the unanimous opinion that the (9,9) approach is an ideal one. However they felt that most of the time they had to be content with a (5,5) approach. Periodically they had to resort to (9,1) approach also.

Imperfect human beings as we are, we may resort to various approaches due to circumstances and our mood. But our perpetual aspiration should be to resolve conflicts through the (9,9) approach. It will be apt to remember Gandhiji's ideas in this context. We are all seekers of truth. When persons or groups clash, the clash involves a conflict between different sets of relative truths. In order to resolve the conflict, these sets of relative truths are to be synthesised so that it becomes an improvement upon each of its constituents and this will result in progress towards absolute truth.

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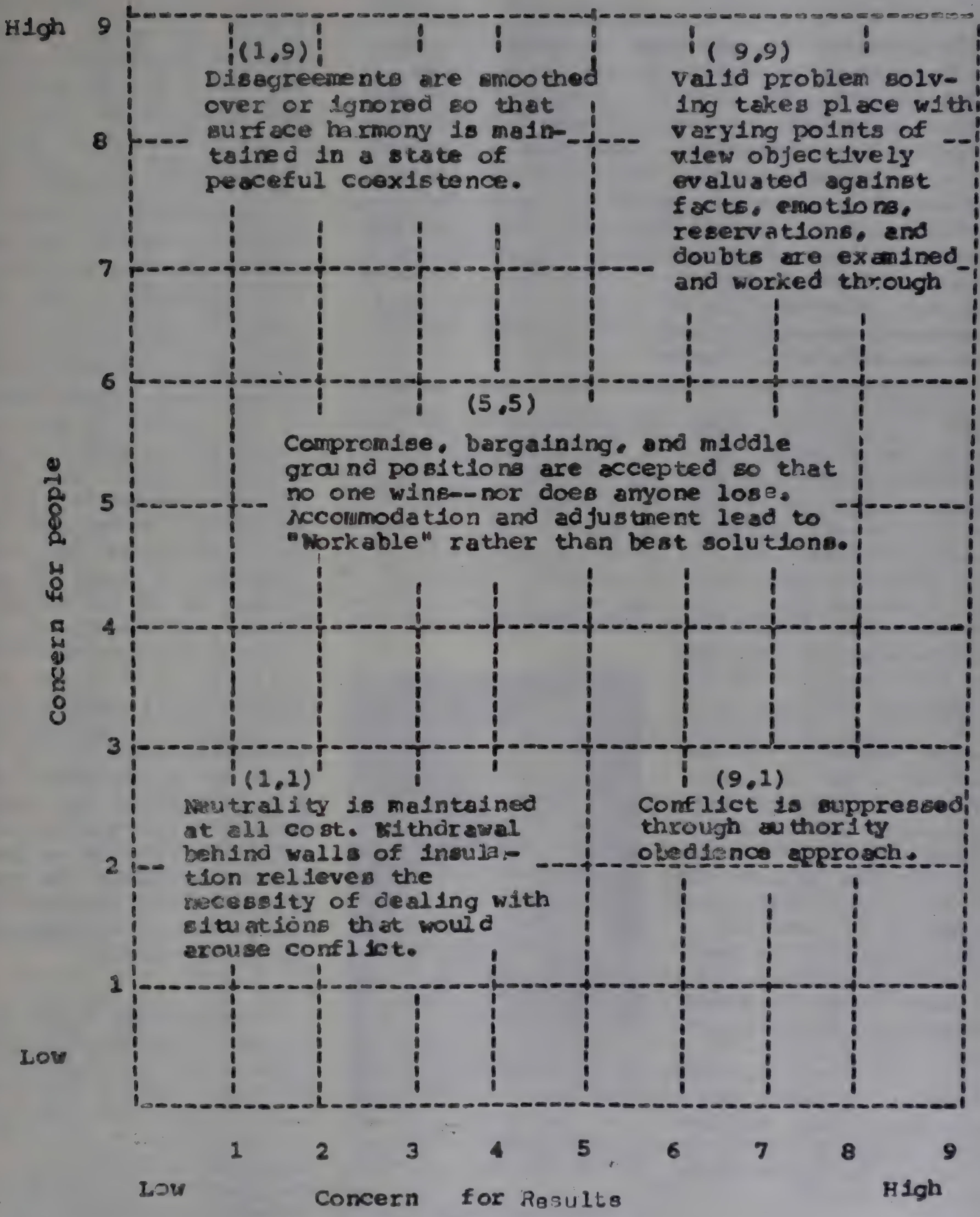


(1,9)
Disagreements are smoothed over or ignored so that surface harmony is maintained in a state of peaceful coexistence.

(9,9)
Valid problem solving takes place with varying points of view objectively evaluated against facts, emotions, reservations, and doubts are examined and worked through

(5,5)
Compromise, bargaining, and middle ground positions are accepted so that no one wins--nor does anyone lose. Accommodation and adjustment lead to "Workable" rather than best solutions.

(1,1)
Neutrality is maintained at all cost. Withdrawal behind walls of insulation relieves the necessity of dealing with situations that would arouse conflict.

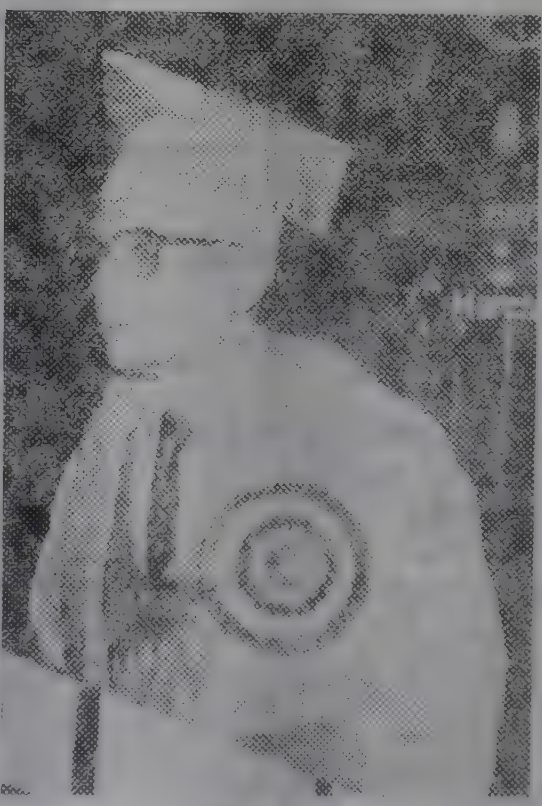
(9,1)
Conflict is suppressed through authority obedience approach.

THE CONFLICT GRID (Stephen, 1977)

THE UNMET CHALLENGES

"The agricultural sector now indisputably occupies a prime status in the economy of this country," observed Hon'ble Justice P.S. Shah of the Bombay High Court while delivering the Convocation Address at the 14th convocation of Mahatma Phule Agricultural University, Rahuri (Maharashtra). Justice Shah paid handsome tributes to agricultural scientists when he said, "It is a matter of pride that the agricultural graduates and the scientists have been able to reach the agriculturists at the grassroot level and have been rendering to them valuable guidance and the help needed by them to increase productivity". He however reminded them of the unmet challenges of halting of the rate of growth of population by popularising the concept of small family, growing ecological imbalance and pollution. Excerpts.

Ours is a country largely dependent on agriculture. As a matter of fact, agriculture has been a source of livelihood for more than half of the world's population. In some countries more than 75% of the inhabitants support themselves by farming, though in the more industralised countries the proportion ranges even lower than 7%. For instance; it is less than 7% in the U.S. and lesser still in the U.K. Though we have made significant progress in the non-agricultural sectors of economy and industrial growth, agriculture still remains not only a source of livelihood for the majority of our people, but also influences our economy as a whole. Indeed, there has been in the recent past a growing realisation of the importance of agriculture in our economy as a whole. The agricultural sector now indisputably occupies a prime status in the economy of this country. The development in the industry and agricultural sectors must go hand in hand. We have seen that if there is a failure of crop in a year that does affect the industrial sector as well.



Justice P. S. Shah delivering the convocation address

After we attained intependence, steps have been taken to enact various laws affecting the landlords and the tillers of the soil. As far as our State is concerned, the two important legislations which made a considerable impact on the agriculturists are the Bombay Tenancy Act and the Ceiling on the Agricultural Holdings Act. By other enactments the various Inams and Watans were abolished. Rights of ownership were conferred on the tenants who were tillers of soil. The age old absentee landlordism was brought to an end. Restrictions were put on the extent of holding of land by a person and the excess land was distributed to the landless farmers. The fears that the reduction in the holding of a land-holder would result in lower production were belied and the tenant who became the owner was in a position to produce much more than what used to be produced by him in the land earlier. The reason for this change was obvious. The landlords were ordinarily not interested in the development of their lands either because they were unable to invest the necessary funds or the tenants themselves lacked initiative because of poverty and also because he was required to share the produce with the landlord or also because his primary needs were more or less satisfied by whatever was produced in the land. The other factor which helped the agriculturists in raising the farm produce was the new scientific methods and technology which were being made available to them and also the use of fertilisers and pesticides. It is a matter of pride that the agricultural graduates and the scientists have been able to reach the agriculturists at the grassroot level and have been rendering to them valuable guidance and the help needed by them to increase productivity. The 'green revolution' ushered in the new era of hope and agricultural production has increased manifold.

However, though on one side we see the spectrum of increased agricultural produce, this is offset to some extent by the rate of growth in population. With the continuous increase in the number of mouths to be fed, it is paramount that greater efforts for much higher production must be made. More important, of course, is the halting of the rate of growth of population by popularising the concept of small family and benefits arising therefrom, particularly with the rural masses.

We are facing the worst drought of the century. It is easy to lay the blame on the vagaries of the nature and the failure of the monsoon. Who have brought us to this situation? It is our own people who for personal gains have destroyed our forests. This is one of the prime causes of the failure of rains. Pollution is another contributory factor. The air is polluted; the water is polluted. Pollution which may be considered as the 'monopoly' of the big cities, is now spreading fast into the rural areas by reason of industrialisation even in non-urban areas, without taking adequate steps to check the pollution caused by these factories. These and other various challenges are before us. It is you as agricultural scientists who should be able to find out solutions for these problems.

Fortunately, this University is well equipped to make effective contribution through high quality of research and service for the advancement of agriculture. You have several research centres which work on different crops, different systems of farming and maintenance of the soil fertility. It is you who can take the results of the research to the farmers by demonstrations and various other means. I must mention that the media and in particular radio and television have immense role to play to create an awareness and spread up knowledge for those who are engaged in agriculture.

In the background of the severe drought condition prevailing in the country, the large number of various kinds of beautiful trees which have been planted here show how the micro-climate of a place can be changed by planting trees and crops mainly under rainfed conditions. It is a matter of satisfaction that the campus here has set an example of what can be done even under difficult terrain and limited use of natural rain and protective irrigation. I am happy to know that the University is planning to start a forestry department which I have no doubt in the course of time will grow into a separate fullfledged college of forestry.

Before I come to a close, it would not be out of place for me to recall the words spoken by Mahatma Gandhi. He said "knowledge without humility is a curse." Your behaviour as the citizens of this country and your attitude towards your fellow country men is as important as tne knowledge acquired by you. Be humane; be considerate; be tolerant; be receptive; be broad-minded and above all practice what you teach to others. It is most unfortunate that while our country has made great progress in various spheres whether science, technology or agriculture and while our country is on the threshold of attaining supremacy in every field, the virus of communalism, casteism, regionalism and petty differences are eating into the very vitals of our Nation and are even a threat to the unity of our country. Let us not forget the founding fathers of our country like Mahatma Gandhi, Lokmanya Tilak, Dr. Ambedkar, Jawaharlal Nehru, Mahatma Phule and several others who sacrificed their lives for attaining independence and for keeping our country united. Their sacrifice should not go in vain. □

Banasthali Vidyapith . . .

(*Continued from page 4*)

ultimately get lost. However, we do not attach any less importance to the new and in all these fields the new is equally attended to.

But coming to the intellectual aspect of our education, we have to accept that all the knowledge we have been providing to our students so far has come fromthe West, whose history begins in the West and whose growth and achievements as well as failures also have first been seen in the West. Ancient Indian contributions to knowledge in all fields, both spiritual and secular, have been totally ignored. This is the greatest academic challenge to free-India and the most depressing and shameful fact is that our intellectuals have been fully ignoring their responsibility in this respect at the cost of national pride and prestige. This is a work which no single educational institution, including a University, can do. Big and small all have to join hands. Banasthali Vidyapith has been quite conscious of it from very beginning, but now, ever since it has become a university, it has been much more conscious of it. And it is in this context that I draw the attention of our universities, the Association of Indian Universities and all academicians to this important academic challenge that faces us. On behalf of Banasthali Vidyapith I can only give the assurance that within our capacity and limits of our resources and facilities we will not be found wanting in doing all that we can do in this respect. Let us hope and trust that this appeal coming from a rather unexpected quarter will be given all the attention it deserves. □

National Conference On Distance Education

University News Special Issue

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Redressal of Grievances Bill

The Hospitals and other Institutions (Redressal of Grievances of Employees) Bill passed by the Rajya Sabha on 28th April, 1988 (but yet to be placed before Lok Sabha) seeks to provide a mechanism and machinery for redressal of both individual and collective grievances of the employees of hospitals; educational, scientific, research or training institutions; cheritable, social or philanthropic services; and institutions engaged in khadi and village industries. Educational institutions defined in the Bill are reported to include any university; any college, whether or not affiliated to a university; any school, whether or not recognised or aided by Government; and any scientific institution.

The Bill provides for the appointment of a person as a Grievance Redressal Authority and the Appellate Authority, for every establishment covered under the Bill. Employees having individual grievances will apply to the Grievance Redressal Authority which will endeavour to pass a final order within a period of 60 days of the date of application. If the Grievance Redressal Authority fails to pass the final order within the stipulated period of 60 days, or if the party is aggrieved by the final order, it can prefer an appeal to the Appellate Authority within a period of 45 days. The Appellate Authority after giving reasonable opportunity to the parties to the dispute will endeavour to pass a final verdict within 90 days from the date the appeal is made. Further, in case the Appellate Authority does not hand down the final order within this period or the party is aggrieved by the order, a further appeal can be preferred within 45 days with the one man Tribunal constituted by the Government. The Tribunal will be expected to pass the final order within 90 days of the appeal. The Bill provides that during the period the grievance is under consideration of any of these authorities, no employee shall go on strike or resort to other means of protest like work to rule, go slow, gherao, etc., as also no employer shall lock-out his employees.

As regards collective grievances, which are reported to include wages including period and mode of payment, compensatory and other allowances, hours of work and rest intervals, leave with wages and holidays, and retirement benefits, the Bill provides for the appointment of a Management Council of not less than 2 and not more than 10 members representing both the employer and the employees in equal number. While the employer's representatives will be nominated by the employer, the employee's representatives shall be chosen by the registered unions or associations on the basis of their proportionate membership of the employees in the establishment, and only such unions or associations will be eligible to do so who have not less than 10 per cent of the membership of the employees. Meetings of the Management Council shall be presided over alternatively by a member representing the employer and a member representing the employees. The Council, it is further reported, shall promote harmonious relations between the employers and employees and shall advise the employer to frame by-laws regarding conditions of service, etc. A collective grievance can be referred for settlement to the Management Council at the instance of not less than 10% of the employees in the establishment. The Management Council shall be expected to settle the grievance within 90 days of the reference made to it, failing which either party can refer the grievance for arbitration to an Arbitrator agreed to by the parties or where the parties fail to agree, the Government will constitute a Board of Arbitrators on a request made to it by either party. The Arbitrator or the Board of Arbitrators shall be expected to submit its award within the period specified in the reference made to it. The Arbitrator shall be appointed from a list of panelists maintained for the purpose by the Government. However, the Government reserves the right to wholly or partially reject or modify the award if it feels that it will not be expedient, on public grounds affecting national economy or social justice, to give affect to the award.

The Bill provides that while the collective grievances are under consideration of the specified authorities, no employer shall alter, to the prejudice of the employees, their conditions of service nor will the employees resort to strikes or other protest measures. The Bill provides elaborate penalties for both the employees and the employers for violation of different provisions of the Bill. Imprisonment for one to three months with fine up to Rs. 1000/- is the punishment provided for an employee resorting to strike and other protest measures during the proceedings of the specified authorities, while the punishment for the instigators ranges from 2 to 6 months imprisonment with fine up to 10,000/- rupees. An employer resorting to lock-out during the proceedings can be punished with 1 to 6 months imprisonment with fine up to Rs. 50,000/-.

The Bill is also reported to provide that no court shall take cognizence of any offence punishable under this Act once it comes into force. □

Communal Harmony An Agenda for the Academia

The Department of Economics of the University of Bombay organised a symposium on "The Role of Academics in Communal Harmony" at the Vidyanagari Campus on March 28, 1988. Over 100 teachers from the University/affiliated colleges participated. It was presided over by the eminent scholar, Professor (Miss) Aloo J. Dastur. Professor Ram Joshi, ex-Vice-Chancellor, University of Bombay, Mr. Ashgarali Engineer, eminent social scientist and a noted social reformer and Mr. Achin Vanaik, Assistant Editor, Times of India, were the main speakers.

Professor Ranganath Bharadwaj, Diretctor of the Department of Economics, University of Bombay, at the outset stated that a realisation is emerging among the academic community that while pursuing their studies and teaching in various conventional subjects, they should simultaneously give some serious thought to the issues and problems of society. An important area of concern these days in the country was the possibility, and actual reality, of conflicts arising from linguistic, religious and caste differences. The academics owed to the nation the responsibility of studying and analysing the sources of these conflicts in the proper perspective and even suggest remedial action, in addition to their prescribed duties and responsibilities, since these problems were of national importance.

The stimulating discussions underscored, how, basically, the power-structure served as a motivation force for actual disharmony. Therefore, there was a general feeling that unless we have decentralisation of power in the true sense, bringing about communal/linguistic/caste harmony would not be an easy exercise. In this context, the role of politics and political parties was considered to be extremely important. However, there were also deeper aspects to the question of creating such an egalitarian power-structure where each individual would be as powerful or as powerless as the other—an ideal which is difficult to attain but would ensure communal harmony.

It was observed that given the general socio-political milieu operating under severe constraints of economic opportunities, the role of teachers, specifically, would be marginal in nature, though not altogether insignificant. Teachers could play their intellectual "subversive role constructively". This could provide leads as to the way in which the issues could be formulated and debated so that a more meaningful and educative dialogue towards eventual harmony could take place.

Seminar on Futurology

A three-day seminar on futurology was recently held at the Guwahati University. Sponsored by the Department of Science and Technology, Govt. of India, the seminar was attended by a galaxy of working scientists, educationists, industrialists, administrators and postgraduate students.

The deliberations were held under five different sessions, namely, (1)development of human resources, (2) eco-development and water and soil management, (3) science and technology, (4) health and social welfare, and (5) food and agriculture—life style in 21st century.

The following recommendations emerged at the conclusion of the seminar.

- A futurology centre should be established in Assam in order to educate the people to think about the future and steps should be taken for studying life and society in coming years.

- Some Centres of excellence should be set up in the state at least in a few subjects so as to come nearer to advanced nations of the world. For this sufficient funds should be made available either by the Central or the State Government, so that it is possible to produce personnel of excellence to carry out first quality research and developmental work including seismicity and water management.

- States of North Eastern region should start perspective planning, not merely linear extrapolation methods of planning based on the past achievements. It is extremely necessary for this Region to set up a data-base with all modern gadgets so as to help the people of the region.

- Public sector undertakings either State or Centre should come forward to set up in future coal, gas or oil based and other big scale industries.

- Rural work for medical students for a fixed period should be made obligatory. Para-medical persons should be brought to medical profession. Training facilities for para-medical persons should be started.

- A commission on futurology should be set up by the State Government immediately to act as a think tank of the society and the people of Assam.

IRRI & Assam Agrl. Varsity Collaborate

Assam Agricultural University is reported to have collaboration with the International Rice Research Institute, Manila for Ph.D. Programme. After completion of the degree course at the Assam Agricultural University, one or two candidates will be awarded fellowship with travelling expenses for doing research work to Manila for three year Ph.D. Programme. The degree will be awarded by the Assam Agricultural University.

The Ministry of Agriculture has permitted the University for starting a full-fledged Institute of Extension Education at Jorhat.

The Department of Biochemistry, Government of India, have also accepted the proposal of the University for starting Master degree programme in Agricultural Biochemistry. Assam Agricultural University is one of the three Agricultural Universities in India to be selected for starting Master degree course. The programme will be started from the beginning of the next year.

Orientation Programme for Principals

Jiwaji University proposes to organise an Orientation Programme for Principals of the colleges affiliated to the university. from 15th to 20th May, 1988 The topics proposed to be discussed includes (i) Orientation to the College Principals regarding the New Education Policy thrusts; (ii) Interaction by mutual expertise and experience; (iii) Implementation strategies for (a) Improving Efficiency and Academic Standards, (b) Institutional Management. (c) Autonomous Colleges, and (d) Making the System Work.

Dr. S.C. Saxena, Dean, College Development Council of Jiwaji University, will be the Director of the Programme.

Addl. Resources for TIET Libraray

The University Grants Commission (UGC) has provided an additional sum of Rs. 7 lacs for strengthening of the library of Thapar Institute of Engineering & Technology (TIET), Pataila during the remaining 7th plan period. This is in addition to Rs. 7 lacs provided for the Library for the 7th plan period.

News from Agril. Varsities

Oilseed Thrust Programme

The Indian Council for Agricultural Research (ICAR) has decided to launch special oilseed thrust programme (OTP) in Ranchi, Gumla & Nalanda. An amount of Rs. 14.40 lakh has been earmarked for growing groundnut in this kharif season. This was disclosed by Dr. P.V Shenoi, Additional Secretary, Union Agriculture Ministry and Dr. Mangla Rai, Officer on Special Duty, ICAR on the conclusion of four-day 32nd annual kharif oilseeds workshop organised at Patna recently. Dr. V. Ranga Rao, Project Director, Directorate of Oilseeds Programme, Hyderabad and Dr. Gopalji Trivedi, Vice-Chancellor, Rajendra Agriculture University were also present on the occasion.

Dr. Trivede said that there was great potentiality of growing groundnut in nearly 50000 hectares of land in Kosi area during February and June which would provide 2 lakh tonnes of oil. He said Bihar had been divided in six zones where thrust would be on growing groundnut, sesame, niger sunflower and castor.

The Agriculture Commissioner Mr. Sinha said Bihar would spend Rs. four lakh on developing base seeds and Rs. 1.5 lakh on certified seeds under national oilseed programme.

Dr. Shenoi said the workshop also decided to prepare 5500 quintals of breeder seeds meaning that each and every seed would have to be viable.

Dr. Rao was apprised of the research going on groundnut and rapeseed oil in BAU and mustard and castor at RAU. He said that the Birsa Agriculture University had developed a rare variety of groundnuts in plateall area and in view of its large size the yield may compete in international market.

The four-day workshop discussed at length the breeding agronomy entomoly and pathology and agro climatic aspect while growing oilseeds in the country.

Promoting Biofertilizers

Realising the importance of biofertilizers for supplementing the use of chemical fertilizers, Department of Agriculture and Co-operation, Government of India in the Ministry of Agriculture, has started a National Project on Development and Use of Bio-fertilizers with one

National Centre at Ghaziabad and six Regional Centres at Jabalpur, Hisar, Pune, Bangalore, Bhubaneshwar and Shillong and 40 subcentres of blue-green algae productions including two sub-centres at Raipur, and Jagdalpur in M.P. The major functions of these Regional Centres are to produce, distribute and promote the use of effective and quality biofertilizers, to organise field demonstrations and training programmes on effective use of fertilizers to State, Central Govt., Agricultural Officers, Farmers and all those who are associated in agricultural production to test the quality of biofertilizers produced by private and co-operative plants and to provide technical support to institutions.

College of Agriculture at Latur

Marathwada Agricultural University, Parbhani has started a new Agricultural College at Lature to impart training leading to B.Sc. (Agr.) Degree to inservice candidates of the Department of Agriculture, Maharashtra State. Those who have completed two years Diploma course in Agriculture after Matriculation are eligible for this programme. This degree programme is of 3 years duration and would enable the candidates to transfer new Agricultural Technology effectively to the farmers.

Hon. Vilasraoji Deshmukh, Minister for Revenue and Cooperation, Maharashtra State, recently inaugurated the College. In his address the Minister emphasized that University should do the research work on dryland agriculture and find out a suitable technology of low cost inputs. He complimented the University for carrying out excellent research work, particularly on Sorghum, Pulses, Rice, Oilseeds and Vegetables. Whenever a new technology is evolved by the Agricultural University it should be transferred to the farmers efficiently and immediately, he added.

Dr. P.V. Salvi, Vice-Chancellor, who presided, said that the University had opened a new avenue for imparting training to the inservice candidates working in Agriculture Department with a view to upgrade their knowledge and help them in disseminating the new agricultural technologies developed by this University to the farmers in this region. He also said that this was the only agricultural college in the State for the inservice candidates for higher education. The intake capacity of the college is 32 candidates.

AIU News

Training-cum-Orientation Programme

The Association of Indian Universities (AIU) will organise a five-day training-cum-orientation programme on 'Financial Administration in Universities' at University of Poona, from 6-10 June, 1988. Intended for Finance Officers of Indian Universities, the programme will include keynote presentations, case studies and discussions on problems of financial management, budgetary reforms including performance and zero based budgeting, computers in financial accounting and university administration, and effective utilisation of resources. Prof. P.V. Salvi, Vice-Chancellor, Marathwada Agricultural University and President, AIU will preside over the Inaugural Function while Shri Veeraraghavan, Secretary, Ministry of Human Resource Development will deliver the Veledictory Address.

A novel feature of the programme would be a programme of yogic exercises conducted by Dr. M.L. Gharote, Principal, G.S. College of Yoga and Cultural Synthesis, Kaivalyadhama, Pune. Visits to local institutions will also form a part of the programme. For effective participation, it is proposed to restrict the number of participants to 30 only. The last date for receipt of nomination together with a Registration Fee of Rs. 1000/- is May 20, 1988.

AIU Seminar at Manipur

The second three-day seminar of of the AIU Seminar Series on 'Implementation and Monitoring of National Policy on Education' is being organised at Manipur University, Imphal on 19-21 May, 1988. The Seminar will include keynote addresses on improvement in efficiency, mobility of teachers and students, making the system work, and language development and cultural perspective. In addition to the Veledictory Session, there will be plenary sessions on the mornings of May 20 and 21, 1988 for reporting the discussions of the previous day and formulating directions for further discussions.

We Congratulate....

(1) Prof. R C. Patel who has taken over as Vice-Chancellor of the M.S. University of Baroda, Baroda.

(2) Lt. Gen. (Retd) G.C. Agarwal who has taken over as Vice-Chancellor of the Maharshi Dayanand University, Rohtak.

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertations as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

CURRENT DOCUMENTATION IN EDUCATION

A List of Select Articles culled from periodicals received in the AIU Library during April, 1988

EDUCATIONAL PHILOSOPHY

Dube, S.C. Education for an unknown future. *New Frontiers Edu.* 18(1); Jan-March 1988. 51-5.

Ediger, Marlow. The great debate in education. *New Frontiers Edu.* 18 (1); Jan-March 1988. 1-7.

Sadasivan, T. Education and human resource development. *J. Indian Edn* 13 (3), 1987, 67-72.

Savariraj, G.A. Elements of value-oriented education in physics. *New Frontiers Edu.* 18 (1); Jan-March 1988. 27-33.

EDUCATIONAL SOCIOLOGY

Aggarwal, Yash. Some aspects of educational development among the scheduled caste population in India. *J. Ednl. Plg. & Admn.* 1(2), 1987, 137-64.

Agrawal, Rekha Rani. Who are the disadvantaged? *J. Indian Edn.* 13(3), 1987, 37-41.

Cobb, John B. Jr. Education and religious pluralism. *Deadalus* 117(2), 1988, 147-9.

Royburman, B.K. Pattern of tribal education, status of research and sociological dimensions for projecting the future. *J. Ednl. Plg. & Admn.* 1(2), 1987, 126-36.

Sharma, B.D. Education and society. *J. Ednl. Plg. & Admn.* 1(2), 1987, 38-56.

Sharma, K.R. Scheduled tribes and equal educational opportunities. *J. Indian Edn.* 13(3), 1987, 28-32.

EDUCATIONAL ADMINISTRATION

Tierney, William G. Organizational culture in higher education: Defining the essentials. *J. Hr. Edn. 59(1)*, 1987, 2-21.

CURRICULUM

Boli, John and others. Analyzing academic records for informed administration: The Stanford curriculum study. *J. Hr. Edn.* 59(1) 1988, 54-68.

Kiely, Robert. Religion in (and out of) the university curriculum. *Daedalus 117* (2), 1988, 157-9.

Religion and education. *Daedalus* 117(2). 1988. 1-146.

Thangaraj, M.A. Introduction of entrepreneurship as a subject in colleges. *New Frontiers Edu.* 18(1); Jan-March, 1988, 34-41.

TEACHERS & TEACHING

Bhattacharjee, Vardhini. Training of college teachers: A step in human resource development. *New Frontiers Edu* 18(1); Jan-March 1988. 20-6,

Joshi, Sneha and Kumar, S. Study of the effect of skill-based training and two differential approaches for training in decision-making ability on the development of teaching competence. *New Frontiers Edn.* 18(1); Jan-March 1988. 118-132.

Lawrence, Janet H and Blackburn, Robert T. Age as a predictor of faculty productivity : Three conceptual approaches. *J. Hr. Edn.* 59(1) 1988. 22-38.

Yadav, M.S. and others. Professional orientation of university teachers : Need and rationale. *New Frontiers Edn.* 18(1) Jan-March 1988. 12-9.

EDUCATIONAL TECHNOLOGY

Anderson John. Information technology and in-service education : A change of emphasis. *British J. Ednl. Tech* 18(3), 1987, 199-205.

Ball, Derek. Microcomputers in mathematics teaching. *British J. Ednl. Tech.* 18(3), 1987, 247-55.

COMPUTERS IN education : Country experiences. *New Frontiers Edn.* 18(1) Jan-March 1988. 83-117.

Ennals, Richard. Difficulties in managing innovation. *British J. Ednl. Tech.* 18(3), 1987, 194-98.

Jones, Ron. Micro-primer revisited : The microelectronics education programme in perspective. *British J. Ednl. Tech.* 18(3), 1987, 206-10.

Mahabala, H.N. Impact of microcomputers on less developed countries. *New Frontiers Edn.* 18(1); Jan-March 1988. 77-82.

Makinson, G.J. and Morarji H.L. Do campus rings signal a turn around the CAL ? *Computers & Edn.* 12(1), 1988, 129-132.

Williams, Peter. CAL production : Strategies and tactics. *Computers & Edn.* 12(1), 1988, 17-21.

EDUCATIONAL EVALUATION

Banta, Trudy W and Schneider, Janet A. Using faculty-developed exit examinations to evaluate academic programs. *J. Hr. Edn.* 59(1), 1988, 69-83.

D'Brien, Michael L and Hampilos, John Peter. The feasibility of creating an itembank from a teacher-made test, using the Rasch model. *Ednl. Psy Measurement* 48(1), 1988, 201-12.

Girves, Jean E and Wemmerus, Virginia. Developing models of graduate student degree progress. *J. Hr. Edn.* 59(2), 1988, 163-89.

Gunasekaran, K. Management of examination reforms in the universities. *New Frontiers Edn.* 18(1); Jan-March 1988. 42-50.

Masters, Geofferey N. Item discrimination : When more is worse. *J. Ednl Measurement* 25(1), 1988, 15-29.

Norcini, John J. and others. The effect of various factors on standard setting. *J. Ednl. Measurement* 25 (1), 1988, 57-65.

Zeidner, Moshe. Sociocultural differences in examinees' attitudes toward scholastic ability exams. *J. Ednl. Measurement* 25(1), 1988, 67-76.

ADULT EDUCATION

Adiseshiah, Malcolm S. Adult education for human rights. *Indian J. Adult Edn.* 48(4), 1987, 20-4.

Fay, Charles H. and others. The setting for continuing education in the year 2000. *New Directions Cont Edn.* (36) 1987. 15-28.

Sachar, Rajindar. Human rights basic to adult education. *Indian J. Adult Edn.* 48(4), 1987, 25-33.

Smith, Douglas H. Changing practices in continuing education management. *New Directions Cont Edn.* (36) 1987. 55-66.

COMPARATIVE & COUNTRY STUDIES

Okuda, Shinjyo. Education today and tomorrow in Japan. *New Frontiers Edn.* 18(1); Jan-March 1988. 56-69.

Stoer, Stephen R. and Dale, Roger. Education, State and society in Portugal, 1926-1981, *Comp. Edn. Rev.* 31(3), 1987, 400-18.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

BIOLOGICAL SCIENCES

Anthropology

1. Chopra, Parvesh Kumar. *Behavioural profile of free ranging rhesus monkeys.* Delhi.

2. Verma, Rashmi. *A study of obesity and leanness among the Punjabi families.* Delhi.

Biochemistry

1. Bhattacharyya, Debdas. *Agricultural evaluation of mycobacillin, an antibiotic and mycoversilin producer Aspergillus versicolor, an antagonist.* Calcutta.

2. Chakrabarti, Ranjan. *Studies on the effect of reserpine on the peroxidase activity of submaxillary gland.* Calcutta.

3. Manga, V. Alivelu. *Phytochrome mediated β-amylase activity in mustard, Sinapis alba L cotyledon.* Hyderabad. Dr. R. P. Sharma.

4. Mukhopadhyay, Arindram. *Studies on metabolism of polyamines and their role in protein synthesis in relation to loss of viability of rice seeds, Oryza sativa L.* Calcutta.

5. Sapru, Mohan K. *A study on the molecular (biochemical) basis of major psychiatric disorders.* Bangalore. Dr. B. S. Sridhara Rama Rao, Prof. and Head, Department of Neuro Chemistry, National Institute of Mental Health and Neuro Sciences, Bangalore.

6. Subbaramaiah, K. *β-amylase from mustard, Sinapis alba cotyledons : Purification, molecular characterisation and photoregulation during seedling development.* Hyderabad. Dr. R.P. Sharma.

7. Sureshkumar, G. *Biochemical studies on heart muscle : Studies on lysosomal β-hexosaminidases from human heart muscle.* Kerala. Dr. Debkumar Basu, Prof., Department of Neurochemistry, S.C.T.I.M.S.T., Trivandrum.

8. Unnikrishnan, V.S. *Biochemical investigation on proteoglycans in liver.* Kerala. Dr. P.R. Sudhakaran, Reader,

Department of Biochemistry, University of Kerala, Trivandrum.

Botany

1. Barui, Nimai Chandra. *Quaternary pollen analysis in relation to dating, vegetational history and biostratigraphy of West Bengal Basin.* Calcutta.

2. George, Mohan P. *Impact of thermal power stations on the distribution and bioaccumulation of aquatic invertebrates.* H.S. Gour. Dr. K.S. Unni, Prof., Department of Botany, Govt. Post-Graduate College, Chhindwara, M.P.

3. Goel, Neera. *Growth, and biochemical changes in groundnut, Arachis hypogaea L. under saline conditions.* Rohilkhand. Dr. K.A. Varshney, Bareilly College, Bareilly.

4. Jhansi, P. *Pollen analysis of honey from Andhra Pradesh.* Osmania.

5. Kashyap, Satya Dev. *Studies on dry matter production, nutrient accumulation and wood characteristics in Populus ciliata Wall. Ex. Royle.* H.P.

6. Kundu, Samiran. *Aerobiology of pollen grains in Darjee ling with reference to environmental pollution and respiratory allergy.* Calcutta.

7. Meenakshi. *Induced chromosomal mutations and degree of susceptibility towards various radiomimetic substances in Indian charophyta with special reference to their phylogeny, speciation and evolution.* Rohilkhand. Dr. S.K. Bhatnagar, Bareilly College, Bareilly.

8. Paul, Mahima. *Studies on pathology disorders in seed of paddy from tribal areas of Rajasthan.* Rajasthan. Dr. Dalbir Singh, Prof., Department of Botany, University of Rajasthan, Jaipur.

9. Ram Chandani, Ratna. *Ecological studies of selected leguminous and non-leguminous weeds of rabi and kharif crops of Pant Nagar Farm.* Rajasthan. Dr. B.V. Ratnam, B-42 Prabhu Marg, Tilak Nagar, Jaipur and Dr. G.B. Nathawat, Director, Indira Gandhi Centre for H.E E.P.S. University of Rajasthan, Jaipur.

10. Ramani, Vidya. *In vivo and in vitro studies on the leaf rachis cells of Prosopis cineraria (Linn.) Druce induced by insect.* Rajasthan. Dr. Uma Kant, Dapartment of Botany, University of Rajasthan, Jaipur.

11. Richa. *Studies on growth, development and yield components of Indian mustard, Brassica juncea in relation to applied growth regulators.* PAU.

12. Sardar, Asit Kumar. *Cytogenetical investigations on induced mntations and polyploids in Trichosanthes anguina Linn.* Calcutta.

13. Satappa, Giriyappanavar Basavaraj. *Studies on the blue green algae and the effect of certain chemicals on them.* Karnatak. Dr. S.G. Bharati, Retd Prof., Department of Botany, Karnatak University, Dharwad.

14. Sharma, Mani Shanker. *Effect of growth regulators and retardants on growth and sex expression and yield of bottlegourd.* Ravishankar.

15. Sharma, Rajni, *Ethnobotanical and pharmacological studies of some selected xerophytic plants.* Rajasthan. Dr. S.C. Jain, Department of Botany, University of Rajasthan, Jaipur.

16. Singh, Chandra Bhushan. *Physiological studies on the cyanobacterium, Nostoc calcicola under mercury stress.* BHU. Dr. S.P. Singh, Reader, Department of Botany, Banaras Hindu University, Varanasi.

17. Soni, Jeev Raj. *Studies on morphogenesis and differentiation in cell, tissue and organ, cultures of fennel, Foenicum vulgare Mill and cumin, Cuminum cyminum L.* Rajasthan. Prof. Naresh Chandra, Department of Botany, University of Rajasthan, Jaipur.

18. Subramanjam B. *Biology of Rhizobium from subtropical Himalayan legumes of potential economic importance.* Delhi.

Agriculture

1. Akhtar Ali. *Effects of certified gram, Cicer arietinum Linn seeds and its manifestation on the productivity.* CSAT. Dr. A.S Warsi.

2. Attarde, Devidas Ramdas. *Study of nitrogen and P_2O_5 fertilizer use efficieney in relation to time of planting of groundnut; Arachis hyphogaea L as an intercrop in maize, Zea mays L with different planting patterns and plant densities.* M.P. Agrl. Dr. B.V. Mohite, Prof., Department of Agronomy, College of Agriculture, Kolhapur.

3. Barwad, Wamanrao Laxmanrao. *Efficacy of synthetic inseticides against cotton bollworms and their impact on the predominant natural ememies.* Marathwada Agrl. Dr. A.K. Raodeo, Assoc Dean (Instruction), Marathwada Agricultural University, Parbhani.

4. Bhagwandin. *Effect of seedbed configuration and mulches on crops yield in sole and intercropping systems under rainfed condition.* CSAT. Dr. K.S. Bhatia, Assoc Prof. Department of Soil Conservation, Chandra Shekhar Azad University of Agriculture and Technology, Kanpur.

5. Bhatia, Hardev Singh. *Standardization of tissue sampling techniques and critical nitrogen level in pecan, Carva illinoensis Koch.* *YS Parmar.* Dr, V.P. Bhutani, Department of Fruit Culture and Orchard Management, College of Horticulture, Solan.

6. Bhattacharya, Rahul. *Phytoionic role of granular pesticides on some crop plants and their effect on important soil microflora.* Bhopal. Dr. B.P. Shrivastava, D-49 Hauz Khas, New Delhi and Dr. (Mrs) S.D. Belsare, Reader, Department of Bio-Science, Bhopal University, Bhopal.

7. Dwivedi, Brahma Swaroop. *Studies on zinc status of soils and requirements of zinc for different crops based on soil testing in Uttar Pradesh.* CSAT. Dr. K.N. Tiwari.

8. Gupta, Devendra Kr. *Studies on seed-borne fungi of some cruciferous vegetable seeds grown in Sikkim.* BHU. Dr. K.C. Basuchaudhary, Prof. Department of Mycology and Plant Pathology, Banaras Hindu University, Varanasi.

9. Hari Ram. *Forms of sulphur and its role on the yield and quality of chickpea, Cicer arietinum L in central alluvial soils of Kanpur district (Uttar Pradesh).* CSAT. Dr. K.N. Dwivedi, Assoc Prof, Department of Soils and Agricultural Chemistry, Chandra Shekhar Azad Uuiversity of Agriculture and Technology, Kanpur.

10. Indulkar, Bhagwat Sambhaji. *Management of zinc using various inorganic organic zinc carriers in rice gram and sorghum wheat cropping systems.* Marathwada Agrl. Dr. G.U. Malewar, Head, Department of Agricultural Chemistry and Soil Science, Marathwada Agricultural University, Parbhani.

11. Katiyar, Subodh Kumar. *Behaviour of nitrogen, phosphorus and sulphur in soils and legume-oilseed crop sequence.* CSAT. Dr. R.M. Upadhyay, Assoc Prof, Department of Soils and Agricultural Chemistry, Chandra Shekhar Azad University of Agriculture and Technology, Kanpur.

12. Lukade, Gafoor Mohammad Haji. *Studies on the root rot of safflower caused by Rhizoctonia bataticola (Taub.)*

Butler. M.P. Agrl. Dr. M.S. Rane, Ex-Prof, Department of Plant Pathology, College of Agricultuje, Pune.

13. Mani, Buddhesh. *Nutritional studies in linseed, Linum usitatissimum L.* CSAT. Dr. K.N. Dwivedi, Assoc Prof, Department of Soils and Agricultural Chemistry, Chandra Shekhar Azad University of Agriculture and Technology, Kanpur.

14. Mohinder Singh. *Forms and distribution of sulphur in different soils and their behaviour in soil plant* system. HAU.

15. Mohla, Ajmer Singh. *A study of genetic architecture of quantitative traits of economic importance in upland cotton, Gossypium hirsutum L.* HAU.

16. Pandita, Vinod Kumar. *Role of ethylene in the translocation and metabolism of radioactive auxin during growth and abscission of apple.* Y.S. Parmar. Dr. K.K. Jindal, Chief Scientist, Regional Forest Research Station, Mashobra Shimla.

17. Ramesh Kumar. *Water use and relay cropping studies in spring potato, Solanum tuberosum* H.P. Krishi. Dr. I.S. Chakor, Department of Agronomy and Agrometeorology, College of Agriculture, Palampur.

18. Ray, Uma. *Genetical and breeding studies in ridge gourd, Luffa aculangula Roxb with special reference to sex expression and hybrid vigour.* Calcutta.

19. Sarawgi, Arvind Kumar. *Partial diallel cross analysis of yield and its component in rice.* JN Krishi, Dr. S.P. Singh, Dean, College of Agriculture, Jabalpur and Dr, P.S. Shrivastava, Prof. and Head, Department of Plant Breeding, Indira Gandhi Krishi Vishwa Vidyalaya, Raipur.

20. Sharma, Kailash Nath. *Metabolism of phosphorus of different growth stages of rice during normal and stress conditions.* BHU. Dr. B. Singh, Prof. and Head, Department of Soil Science and Agricultural Chemistry, Banaras Hindu University, Varanasi.

21. Sharma, Ram Parkash. *Reciprocal influence of rootstock and scion on growth and mineral composition of stone ftuits.* Y.S. Parmar. Dr. R.L. Sharma, Chief Scientist, Regional Horticultural Research Station, Bajaura, Distt. Kullu, H.P.

22. Sidhu, Amrik Singh. *Diallel analysis over environments in tomato, Lycopersicon esculentum Mill.* PAU.

23. Singh, Bharat. *Transformation and availability of nutrients under submerged and upland condition of paddy.* CSAT. Dr. O.P. Srivastava.

24. Singh, Binay. *Studies on certain micronutrients and NAA on acid lime, Citrus aurantifolia Swingle.* CSAT. Dr. A. Prasad, Assoc Prof. Department of Horticulture, Chandra Shekhar Azad University of Agriculture and Technology, Kanpur.

25. Singh, Dinesh. *Mutagenesis in lentil, Lens culinaris Medic.* BHU. Dr. R.M. Singh, Prof. and Head, Department of Genetics and Plant Breeding, Banaras Hindu University, Varanasi.

26. Singh, Gaj Raj. *Effect of methods of irrigation, dates of planting and nitrogen fertilization on emergence, growth and development, yield and quality of potato, Solanum tuberosum L. HAU.*

27. Singh, Ghan Shyam. *Physiological studies on uptake and assimilation of nitrogen and its relationship to grain yield of wheats, Triticum aestivum L. under rainfed conditions.* CSAT. Dr. R.D.L. Srivastava, Assoc Prof., Department of Crop Physiology, Chandra Shekhar Azad University of Agriculture and Technology, Kanpur.

28. Singh, Ram Pratap. *Comparison of single seed descent and bulk methods in mungbean, Vigna radiata (L.) Wilczek.* BHU. Dr. B.D. Singh, Reader, Department of Genetics and Plant Breeding, Banaras Hindu University, Varanasi.

29. Thakur, Khyal Chand. *Studies on the development of true potato seed technology.* HP.

30. Vardani. *Effect of cultural practices on soil and moisture conservation and yield of crops under rainfed condition in sole and inter-cropping systems.* CSAT. Dr. K.S. Bhatia, Assoc Prof., Department of Soil Conservation, Chandra Shekhar Azad University of Agriculture and Technology, Kanpur.

31. Virender Singh. *Heterosis and combining ability studies in okra, Abelmoschus esculentus (L) Moench.* HAU.

32. Yadav, Lalla Singh. *Evaluation of some crop management practices for the integrated control of pod borers, Heliothis armigera Hubner and Melanagromyza obtusa Malloch in pigeonpea.* HAU.

Zoology

1. Bandyopadhyay, Debasish. *Role of hormones in the pressor homeostasis in birds.* Calcutta.

2. Gurudeo, Anant Swarup. *Studies on the structure and behaviour of the chromosomes in some fresh water fishes with special reference to effects of some drugs and antibiotics.* H.S. Gour. Dr. H K. Saksena, Reader, Department of Zoology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

3· Kannan, K. Navaneetha. *Light relations of the circadian rhythm in the palm squirrel, Funambulus palmarum.* Madurai.

4. Kharbanda, Kusum. *Studies on the rat ventral prostate as an extragonadal source of inhibin.* Delhi.

5. Malhotra, Pawan. *Bovine seminal plasma inhibin revisited.* Delhi.

6. Meshram, Premanand Balkrishna. *Insect pests of important local forest tree species in nursery and their* control. Durgawati. Dr. S.C. Pathak, Department of Bio-Science, Rani Durgawati Vishwavidyalaya, Jabalpur.

7. Mishra, U.K. *Acute toxicity of certain pesticides to a freshwater teleost, Glassogobius giurts Name.* Bhopal. Dr. Santosh Kumar, Prof and Head, Department of Bio-Science, Bhopal University, Bhopal and Dr. O.P. Jain, Asstt. Prof., Department of Zoology, M.V.M, Bhopal.

8. Naidu, R. Sridevi. *Studies on the nucleic acids, proteins and changes in some enzyme activities in the testes, fat body and accessory glands and their hormonal regulation during development in the males of Spodoptera litura (Noctuidae : Lepidoptera).* Hyderabad. Prof. P.S. Rama Murty, Department of Life Sciences, University of Hyderabad, Hyderabad.

9. Naithani, Sangeeta. *Studies on biology, bionomics and control of a major pest of mustard, Brassica spp. oilseed crops.* Rohilkhand. Dr. R.K. Sharma, Bareilly College, Bareilly.

10. Pattnaik, Subasini. *Chromosomal organisation of culex.* Berhampur. Prof. C.C. Das, Head, Department of Zoology, Berhampur University, Berhampur.

11. Rajnesh Kumar. *Histochemical and lectin staining studies of carbohydrates in the rat ovary.* PAU.

12. Rajwant Kaur. *Response of the mouse genome on its exposure to certain agricultural chemicals and heavy metal compounds.* Panjab.

13. Ray, Prajna Paramita. *Physiological studies of the adrenal gland in turtles.* Calcutta.

14. Relia, Shashi Bala. *Studies on encystment and excyst-*

ment in Stylonychia mytilus Ehrenberg and Pseudourostyla levis Stokes. Delhi.

15. Sarkar, Soma. *Genome organization in the mole cricket, Gryllotalpa fossor.* Delhi.

16. Sarma, S.S.S. *Experimental studies on the ecology of Brachionus patulus Muller (Rotifera) in relation to food, temperature and predation.* Delhi.

17. Sharma, Rewa. *A study of ecology of four common species of fruit flies (Tephritidae : Diptera).* Panjab.

18. Siva Prasad, R. *Studies on the effects of some non-steroidal antifertility drugs on the reproductive organs of the male rat.* Hyderabad. Dr. E. Vijayan, Reader, Department of Life Sciences, University of Hyderabad, Hyderabad.

19. Subrahmanyam, Madhavapeddi Naga Venkata. *Studies on some aspects of water quality and phytoplankton in Visakhapatnam Harbour. East Coast of India.* Andhra.

20. Sud, Sangeeta. *Study of pathogenesis in relation to helminth infections in some fishes of Gobind Sagar Lake and its associated waters.* Panjab.

21. Urfi, Abdul Jamil. *Histophysiological studies on muscles of certain freshwater teleosts with special reference to fibre distribution and muscle growth.* Delhi.

Medical Sciences

1. Baral, Rames Chandra. *Biochemistry of amniotic fluid in relation to some aspects of carbohydrate metabolism.* Calcutta.

2. Chauhan, Shyam Singh. *Cytotoxicity of inhaled coal fly ash : Biochemical studies in lung and liver of rats.*

3. Garg, Meenakshi. *Immunological aspects of human breast secretions in relation to the nutritional [status of Indian mothers and its effect on growth and development of children.* Delhi.

4. Gupta, Suresh Chandra. *Neuro physiological adaptation following stress in relation to personality types.* BHU. Dr. G.P. Dubey, Reader, Department of Basic Principles, Banaras Hindu University, Varanasi.

5. Hota, Vijayalaxmi. *Histological study of pancreas with particular reference to the islets of Langerhans : A comparative study.* Sambalpur. Dr. L.K. Tripathy, Ex-Prof, Department of Anatomy, V.S.S. Medical College, Burla.

6. Jyothisri, Akkineni. *Pathogenesis of Giardia lamblia infection.* Delhi.

7. Rajasekaran, N. *Nutritional aspects of hookworm anaemia.* Madurai.

Veterinary Science

1. Agarwal, Sushil Kumar. *Evaluation of response in selection for five week body weight in Japanese quality.* Rohilkhand. Dr. S.C. Mohapatra, Central Avian Research Institute, Indian Veterinary Research Institute, Izatnagar.

2. Arun Kumar. *Studies on the process of reproduction, reproductive capacity and extra gonadal sperm transit time in buffalo-bulls.* HAU.

3. Garg, Satish Kumar. *Pharmacokinetic and toxicological studies of gentamycin in buffaloes and domestic fowl.* HAU.

4. Jeshvantrai, Derasari Hareshkumar. *Kinetics of spermatogenesis in bucks, Capra hircus, duration of seminiferous epithelial cycle, extragonadal sperm reserve and transit time.* H.A.U.

5. Keshri, Ramesh Chandra. *Quality characteristics of pigeon meat.* Rohilkhand. Dr. N. Sharma, Indian Veterinary Research Institute, Izatnagat,

6. Khan, Babu Lal. *Studies on the production of rennin like enzyme from molds.* CSAT. Dr. D.C. Kulshreshtha.

7. Manharlal, Jani Bharat. *Studies on pathophysiology and treatment of induced traumetic arthritis in buffalo calves.* HAU.

8. Mathur, Brijesh Beharilal. *Identification and characterization of lymphocytes of buffaloes.* Rohilkhand. Dr. M.P. Bansal, Indian Veterinary Research Institute, Izatnagar.

9. Mishra, Sarat Chandra. *Relative efficiency of individual versus reciprocal recurrent selection for 8th week body weight in broilers.* OUAT.] Dr. S.C. Mohapatra, Project Coordinator (PB) Central Avian Research Institute. IVRI Campus, Izatnagar.

10. Nain, Satya Pal Singh. *Studies on some immunological methods for the diagnosis of bovine tuberculosis.* HAU.

11. Ram Kumar. *Studies on the effect of hatching months, sex and age on growth, egg production and blood constituents in two lines of turkeys.* HAU.

12. Rana, Zile Singh. *Physio-genetical investigations on some breeds of goats.* HAU.

13. Raviprakash, V. *A study on the role of histamine, 5-hydroxytryptamine and catecholamines.* Rohilkhand. Dr. M. Sabir, Indian Veterinary Research Institute, Izatnagar.

14. Sachdev, Ashok Kumar. *Studies on fertility, hatchability, egg production, egg quality and growth in quails fed different dietary levels of Vitamin A.* Rohilkhand. Dr. A. Panda, Director, Central Avian Research Institute, Indian Veterinary Research Institute, Izatnagar.

15. Sambasiva Rao, K. *A study on the role af bradykinin and angiotensin in estrus cycle and pregnancy in goats.* Rohilkhand. Dr. M. Sabir, Indian Veterinary Research Institute, Izatnagar.

16. Sharma, Navin Chandra. *Infertility in goats.* Rohilkhand. Dr. S.K. Gupta, Indian Veterinary Research Institute, Izatnagar.

17. Sharma, Ramesh Chandra, *Evaluation of the genetic improvement in murrah buffaloes.* CSAT. Dr. B.P. Singh, Prof, Department of Animal Genetics and Breeding, Chandra Shekhar Azad University of Agriculture and Technology, Kanpur.

18. Sharma, Ramji Lal. *Immunological studies on Desophagostomum Columbianum (Curtice, 1890) Stossich, 1899 infection in sheep.* Rohilkhand. Dr. D.N. Dhar, Indian Veterinary Research Institute, Izatnagar.

19. Singh, Rajendra. *Comparative pharmacokinetic and toxicological studies on a plain and potentiated sulphonamide buffalo, Bubalus bubalis.* CSAT. Dr. N.D. Sharma, Assoc Prof, Department of Pharmacology, Chandra Shekhar Azad University of Agriculture and Technology, Kanpur.

20. Singh, Ramjee Prasad. *Physico chemical changes in pickled quail eggs under different packaging and storage conditions.* Rohilkhand. Dr. B. Panda, Director, Central Avian Research Institute, Indian Veterinary Research Institute, Izatnagar.

21. Srivastava, Ashok Kumar. *Slaughter characteristics, meat quality and body composition as influenced by dietary calorie protein ratios in quails broilers.* Rohilkhand. Dr. B. Panda, Director, Central Avian Research Institute, Indian Veterinary Research Institute, Izatnagar.

22. Srivastava, Harendra Prasad. *Evaluation of castor meal in broilers.* Rohilkhand.

23. Tewari, Ram Pher. *Genetic studies of economic parameters and milk production function in pure and crossbred dairy cattle.* CSAT. Dr. N.S. Kushwaha.

MINISTRY OF HUMAN RESOURCE DEVELOPMENT

(DEPARTMENT OF EDUCATION)

POLISH GOVERNMENT SCHOLARSHIPS 1987-88

Applications on plain paper as per the prescribed format are invited from Indian nationals for the award of 15 scholarships offered by the Government of the Polish People's Republic as under :

1. 7 Scholarships for courses leading to Doctoral Degree in (i) Conversion of Coal (ii) Coal Mining (iii) Machine Building (iv) Structural Engineering (v) Chemistry (Polymer) (vi) Mathematics (Pure) (vii) Naval Architecture;

2. 3 Scholarships for post-graduate courses in Town and Country Planning, at Szczecin Technical University; and

3. 5 Scholarships for post-graduate course in National Economic Planning at the Main School of Planning & Statistics, Warsaw.

Value : Adequate maintenance allowance; free medical assistance; tuition and lodging, where necessary

Duration : For (1) 3 years each for For (2) and (3) about 6 months each

Minimum Qualifications : Uniformally good academic record with 60% or above marks in—Master's Degree in Science/Engineering/Technology in the subject or in related field for scholarships at (i) to (vi) under serial No.1; Bachelor's degree in Normal Architecture for (vii) Under Serial No. 1; Bachelor's Degree in Architecture or Civil Engineering or Master's degree in Geograghy with a Post-graduate diploma in Town and Country Planning for scholarships under Serial No. 2; and Master's degree in Economics for those at Serial No. 3.

Essential Experience : At least two consecutive years teaching/research/practical experience at the college or University level as on 1.10.1987 in the subject-field selected after the prescribed qualifications. Successful completion of M.Phil/Pre-Ph.D. course would be counted towards experience. Good knowledge of English is essential. The candidate who have done M Tech./M.E. are however required to have one year experience instead of two as on 1.10.87.

Age : Must be less than 33 years as on 1.10.87 but relaxable upto two years in the case of Scheduled Caste/Schedule Tribe candidates. Upper age limit and experience can also be relaxed but not by more than three months at the discretion of the Selection Committee in the case of candidates who are considered to be exta ordinary brilliant.

Passage Cost : Travel expenses from India to Poland and back will be borne by the candidate or his/her sponsorer/employer. Subject to availability of funds, the passage cost may be met by the Government of India, provided the candidate is eligible under the rules.

Note : (1) Conversion formula is to be given where grades have been awarded by Universities/Institutions. (2) With the applications, candidates must attach attested copies of (a) certificate showing the date of birth; (b) certificate duly signed by First Class Magistrate to one's being a Scheduled Caste/Scheduled Tribe/Backard Class candidate, (c) Marks sheets & certificates/Degrees of all qualifying Examinations (3) Candidates must also affix/attach (a) a recent passport size photograph at the appropriate place in the application (b) a clear and precise programme of studies/research proposed to be undertaken in Poland (c) a crossed Indian Postal Order for Rs. 5/- (and Rs. 125 in case of SC/ST and other backward class candidates) issued after the date of publication of this advertisement and payable to the Secretary, Ministry of Human Resource Development, Department of Education, New Delhi. (4) Applications in the subject fields other than those specified above will not be considered (5) Candidates who have already been abroad for study/research/specialisation/training either on a scholarship or on their own may be eligible to apply only if they have been in India for at least three consecutive years after their return from abroad (6) Applications of candidates who are at present abroad, will not be considered (7) Candidates having contacts with Polish Professors/placement at their Institutes with Polish Professors/placement at their Institute will be given preference. (8) Candidates should have sufficiently good knowledge of India and the Donor country (9) Applications which do not contain Postal Orders or any of the required documents will not be considered (10) No correspondence will be made with candidates not selected for interview/scholarship (11) Canvassing in any form will be a disqualification (12) Candidates who are in employment must send their applications duly sponsored by their employers. An advance copy of such application duly completed in all respects will, however, be considered provided the application through employer is received within a fortnight from the last date prescribed for the receipt of applications in this Ministry. IPO is to be attached with advance copy (13) Applications received last will not be entertained.

Candidates should apply for the above scholarship on a plain paper (preferably typed) in the format given below and send the same to **the Deputy Educational Adviser, Ministry of Human Resource Development, Department of Education, External Scholarship Division, Section ES-I, Room No. 5156, 'B' Wing, Shastri Bhawan, New Delhi-110 001 latest by 30th June 1988.**

.....................APPLICATION FORM.....................

Passport size photograph duly signed in ink to be pasted here (without photograph application will be considered incomplete).

1. Scheme under which applied :
   Subject : Sub-subject :
2. Name in full as in passport/Dr./Shri/Shrimati/Kumari (in Capital letters) (Surname)
   First name and second names
3. Name of father :
4. Name of the sponsoring authority and/or name of the authority which will employ you on return from abroad.
5. (a) Date of Birth : (b) Place of Birth :
6. (a) Are you a citizen of India
   (b) State to which you belong :
   (c) Are you a member of Schedule Caste, Scheduled Tribe or other Backward Class ? If so, give particulars and attach certificate from the District Magistrate of your place of residence in support of your claim. :

For official use only

A	Q	E

7. Address of the applicant with Pin Code number ;

(i) Present/Mailing ; (ii) Permanent :

8. Particulars concerning Examinations passed commencing with Matriculation or equivalent examination (attach attested photocopy of each certificate/diploma/degree for record)

University/ Board/ Institution	Examination passed with year	Class/ Divn.	Percentage of Marks & Position if any.	Subjects taken

9. (a) Details of papers published, if any :

(b) Research work done/practical training received

Name of firm	Date of joining	Date of leaving	Monthly Honorarium/stipend/ Fellowship or Apprenticeship allowance, if any.	Nature of training

10. (a) Particulars of employment :

Office/Institution where employed	Date of joining	Date of leaving	Post held	Monthly Salary	Nature of duties

(b) Indicate what you have been doing since last examination mentioned in item 8.

(c) Have you any contract obligation with your employers? If so, furnish details.

11. (a) Knowledge of foreign languages, if any (Attach proof if possible.)

Skill	Very Good	Good	Fair	Nil
Comprehension : Spoken				
Written				
Expression : Speaking				
Writing				

12. Nature of proposed programme of study/research :

(a) Field of study : Main subject:.........Sub-subject..........

(b) Scholarsxip/Fellowship desired for :

Training/Specialisation Yes
Doctoral Studies
Post-doctoral studies

(c) Name of the Institution (If known) where admission/training is desired (in order of preference).

(d) Are you willing to accept a place at some other institution if the appropriate scholarship agency recommends it ?

(e) Have you already approached any University or University Professor in the country in which you intend to study ? If so, give names and results :

(f) Degree sought, if any :

(g) give, separately in extra sheets, brief statement in about 100 words each about :

(a) The work engaged in (b) Nature, programme of study/research desired :

13. Future prospects after studies/research.
(a) Plan for the future (b) How are these related to the technical or economic development of the country ?

14. (a) Have you applied for any other scholarship in the last two years? If so, state the name(s) of the scholarship(s) and the subject of study/research proposed therein. Are you willing to be considered under any similar scholarship scheme involving study in another country? If so, which ? (b) you had applied under this scheme previously, Please indicate the result.

15. Give below the names of two persons (they must not be related to you) who are in a position to testify from their personal knowledge as to your fitness for the proposed course of study. They must be persons under whom you have worked or studied.

(i) Name with full address : (ii) Name with full address:

16. Have you ever been abroad? If so, give the following particulars:

Country visited	Date of visit	Duration of visit	Purpose of visit	Scholarship received, if any

17. Father's name (in full) :

(a) Nationality.........(b) Occupation.........(c) Address......

*18. In case you are married, please state
(a) The name of your Husband with full address :
(b) Nationality.........................(c) Occupation...............
(*) For married female candidates only.

19. Next of kin to be notified in the case of emergency (give name, address and relationship):

20. Crossed Postal Order of Rs. 5/- (1.25 in case of SC/ST and other backward classes) issued after the date of publication of this advertisement and payable to the Secretary, Ministry of Human Resource Development (Department of Education), New Delhi must be attached with the application form. Kindly give details of Postal Orders attached.

Sl. No.	Postal Order No.	Date of Issue of Postal Order	Name of the Post Office Issuing the Postal Orders	Value of the Postal Order Rs. Ps.

21. I hereby declare that the entries in this form and the additional particulars (if any) furnished in reply to the questions above are true to the best of my knowledge and belief.

Place : Date : (Signature of the Candidate)

22. (a) Certified that Shri/Smt./Km...............is employed by us/me and he has been sponsored by us/me for study abroad.

(b) He/She will be relieved by me/us, if selected.
(c) I/We undertake that he/she will be permitted to join his/her department/organisation on return from study abroad. I/We will ensure that his/her terms and conditions of service i.e. salary, seniority, promotion, leave etc. will not be adversely affected on account of his/her absence and further that every thing possible will be done to provide the scholar with work and conditions of service suitable to and commensurate with his/her qualifications/training obtained abroad.

(Signature of Employer/Sponsoring Authority)

Place : Date : Seal of Office

@ Strike out if not applicable.

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MINISTRY OF HUMAN RESOURCE DEVELOPMENT

(Department of Education)

GERMAN DEMOCRATIC REPUBLIC GOVERNMENT SCHOLARSHIPS 1988-89

Applications on plain paper as per the prescribed format are invited from the Indian nationals, who are residing in India for six scholarships offered by the Government of German Democratic Republic for 1988-89. These scholarships are meant for post-graduate studies/research leading to Doctor's Degree for a period of 3-4 years in the subject fields of (1) Biotechnology (2) Power Engineering (3) Transportation System (4) Plant Protection (5) German Philology; and (6) Soil Science.

Educational Qualifications : Uniformly good academic record with 60% or above marks at Master's Degree in the related subject. (Note : Conversion formula must be given where grades have been awarded by Universities/Institutions).

Experience : At least two consecutive years teaching/research/practical experience as on 31.8.1988 in the related field after obtaining prescribed educational qualifications. Successful completion of M.Phil will be counted as one year experience. Candidates, who have done M.Tech/M.E. are however, required to have one year's experience as on 31.8.1988.

Age : Must be less than 35 years as on 1.10.1988 (Relaxation in age upto two years is however admissible in the case of Scheduled Caste/Scheduled Tribe candidates). Upper age limit and experience can also be relaxed but by not more than three months in any case at the discretion of the Selection Committee in the case of candidates possessing brilliant academic record.

Value : The scholarship carries a maintenance allowance of 500 Marks per months, actual fees, accommodation, book grant, medical care etc.

Passage Cost : The passage cost from India to GDR and back shall be borne by the candidate himself/herself or by his/her sponsors/employers. Subject to the availability of funds, the passage cost my also be met by the Government of India, provided the candidate is eligible under the rules.

Note : (1) The following documents must be attached with the application (a) Attested copy of the certificate certifying the date of birth (b) Candidates belonging to SC/ST must attach a copy of certificate to this effect (c) Attested copies of the mark sheets of qualifying examination (d) Attested copies of all degrees/diplomas/certificates etc. (e) Candidates must furnish a clear and precise programme of study/research (f) A recent passport size photograph of the candidate duly signed in ink must be affixed on the prescribed application form (g) A Crossed Postal Order of Rs. 5/- (and Rs. 1.25 in the case of SC/ST and other backward classes) issued after the date of publication of this advertisement and payable to the Secretary, Ministry of Human Resource Development, Department of Education, New Delhi; (2) Application in the subject-fields other than those specified above will not be considered; (3) Candidates who have already been abroad for study/specialisation/training either on a scholarship or on their own are eligible to apply only if they have been in India for at least three consecutive years after their return from abroad; (4) Applications of candidates who are at present abroad, will not be considered; (5) Candidates should have sufficient good knowledge of India and the donor country; (6) Applications which do not contain Indian Postal Orders and or any of the other required documents will be treated incomplete and will not be considered; (7) No correspondence will be entertained with candidates not selected for interview/scholarship; (8) Canvassing in any form will be a disqualification; (9) Candidates must send their applications sponsored by their employers. An advance copy of the application duly completed in all respects could be considered provisionally pending sponsorship by employer provided the application through proper channel is received within a fortnight from the last date prescribed for receipt of applications; (10) Application received after the prescribed last date will not be entertained for consideration.

Candidates should apply for the above scholarships on plain paper (preferably typed) furnishing the required details/particulars to **the Deputy Educational Adviser, Ministry of Human Resource Development (Department of Education) External Scholarship Division, Section ES-1, Room No. 516 'B' Wing, Shastri Bhavan, New Delhi-110001 latest by 31 August, 1988.**

——————APPLICATION PROFORMA——————

Passport size photograph duly signed in ink to be pasted here (without photograph application will be considered incomplete).

1. Scheme under which applied :
   Subject——————Sub-subject.——————
2. Name in full as in Passport Dr/Shri/Shrimati/Kumari
   (in Capital letters)
   (Surname). First name and second names.
3. Name of father :
4. Name of the sponsoring authority and/or name of the authority which will employ you on return from abroad.
5. (a) Date of Birth : (b) Place of Birth :
6. (a) Are you a citizen of India (b) State to which you belong :
   (c) Are you a member of Scheduled Caste, Scheduled Tribe; or other backward class ? If so, give particulars and attach certificate from the District Magistrate of your place of residence is support of your claim.
   For official use only A Q E
7. Address of the application with Pin Code Numbers :
   (i) Present/Mailing : (ii) Permanent :
8. Particulars concerning Examinations passed commencing with Marticulation or equivalent examination (attach attested) photocopy of each certificate/diploma/degree for record.

University/ Board/ Institution	Examination passed with year	Class/Divn.	Percentage of Marks & Position if any.	Subjects taken

9. (a) Details of papers published, if any :
   (b) Research work done/practical training received

Name of Firm	Date of joining	Date of leaving	Monthly Honorarium/Stipend/Fellowship or Apprenticeship allowance; if any.	Nature of training

10. Particulars of employment :

Office/Institution where employed	Date of joining	Date of leaving	Post held	Monthly salary	Nature of duties

   (b) Indicate what you have been doing since last examination mentioned in item 8.
   (c) Have you any contract obligation with your employers ? If so, furnish details.
11. Knowledge of foreign languages, if any (Attach proof if possible).

Skill	Very good	Good	Fair	Nil
Comprehension : Spoken				
Written				
Expression : Speaking				
Writing				

12. Nature of proposed programme of study/research :
   (a) Field of Study : Main subject :—————— Sub-subject :——————
   (b) Scholarship/Fellowship desired for :
   Training/Specialisation : Yes
   Doctoral Studies :
   Post-doctoral Studies :
   (c) Name of the Institution (if known) where admission/training is desired (in order of preference).
   (d) Are you willing to accept a place at some other institution if the appropriate scholarship agency recommends it ?

(e) Have you already approached any University or University Professor in the country in which you intend to study ? If so, give names and results.

(f) Degree sought, if any :

(g) Give, separately in extra sheets, brief statement in about 100 words each about :
(a) The work engaged in (b) Nature, programme of study/research desired.

13. Future prospects after studies/research,
(a) Plan for the future (b) How are these related to the technical or economic development of the country ?

14. (a) Have you applied for any other scholarship in the last two years ? If so, state the name (s) of the scholarship (s) and the subject of study/research proposed therein. Are you willing to be considered under any similar scholarship scheme involving study in another country ? If so, which ?

(b) If you had applied under this scheme previously please indicate the result.

15. Give below the name of two persons (they must not be related to you) who are in a position to testify from their personal knowledge as to your fitness for the proposed course of study. They must be persons under whom you have worked or studied.
(i) Name with full address : (ii) Name with full address :

16. Have you ever been abroad ? If so, give the following particulars :

Country visited	Date of visit	Duration of visit	Purpose of visit	Scholarship received, if any.

17. Father's Name (in full) :
(a) Nationality———————— (b) Occupation————————— (c) Address

*18. In case you are married, please state :
(a) The name of your husband with full address :
(b) Nationality———————— (c) Occupation—————————
(*) For married female candidates only.

19. Next of kin to be notified in the case of emergency (give name, address and relationship).

20. Crossed Postal Order of Rs. 5/- (Rs. 1.25 in case of SC/ST and other backward classes) issued after the date of publication of this advertisement and payable to the Secretary, Ministry of Human Resource Development (Department of Education) New Delhi must be attached with the application form. Kindly give details of Postal Orders attached.

Sl. No.	Postal Order No.	Date of Issue of Postal Order	Name of the Post Office issuing the Postal Orders	Value of the Postal Order Rs. Ps.

21. I hereby declare that the entries in this form and the additional particulars (if any) furnished in reply to the questions above are true to the best of my knowledge and belief.

Place :

Date : (Signature of the Candidate)

22. (a) Certified that Shri/Smt./Km.........is employed by us/me and he has been sponsored by us/me for study abroad.

(b) He/She will be relieved by me/us, if selected.

(c) I/We undertake that he/she will be permitted to join his/her department/Organisation on return from study abroad. I/We will ensure that his/her terms and conditions of service i.e. salary, seniority, promotion, leave etc. will not be adversely affected on account of his/her absence and further that every thing possible will be done to provide the scholar with work and conditions of service suitable to and commensurate with his/her qualifications/training obtained abroad.

Place :

(Signature of Employer/Sponsoring Authority)

Date :

Seal of Office

@ Strtke out if not applicable.

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THE ULTIMATE IN EDUCATION IS CHARACTER BUILDING
—Mahatma Gandhi

GUJARAT VIDYAPITH : AHMEDABAD-380014

Courses for Training in Work-Oriented Social Reconstruction

Admission for Academic Year 1988-89

(1) Rural Service College—Shri Mahadev Desai Gramsewa Mahavidyalaya, Sadra (Dist.: Ahmedabad) and Randheja (Dist.: Gandhinagar) for training in Rural Services according to Gandhian ideals through a 3-year degree Samaj Vidya Visharad (equivalent to B.A.) course following Standard XII or equivalent certificate. The new academic year commences on 15th June, 1988. Women candidates can apply to College at Randheja and the men at Sadra. Admissions to the first year is open to those who have completed Higher Secondary Standard XII or its equivalent or Primary Teachers' Training or Physical Education or I.T.I. or Drawing Teachers' examination—two years training after Standard X or Pre-University examination. Candidates can also apply pending their results. Besides academic subjects productive work in Agriculture as prinicipal and Animal Husbundry, Ambar Spinning, Rural Technology, etc. as subsidiary subjects for men and Home Science as principal subject and Ambar Spinning, etc. as subsidiary subjects are obligation. The third year of the degree course is devised as a eight month full-time block placement in institutions in rural areas. The project report which all students submit is based on field work during the block placement. The course is residential and stay in hostels and participation in Community life is evaluated and will be necessary.

(2) Parangat (M.A.) in Rural Management and Rural Development and Home Science.

These two courses will commence from June 1988 at the Panchayat Training Centre at village Sadra. Admission open to those who have completed B.A. in IInd class in any of the Social Sciences. Residence and participation in Community life campus—hostel is necessary and will be evaluated. Likewise Parangat (M.A.) in Home Science is a 2-year full time residential course at village Randheja.

(3) Mahatma Gandhi Campus, Ahmedabad (Post-Graduate Courses).

(1) Gujarati (including Linguistics); (2) Hindi (including Hindi as functional language); (3) History and Culture, Archival Studies, (4) Social Anthropology, Social Reconstruction; (5) Rural Economics; (6) Gandhian Thought; (7) Adult Education and Population Education—both 2-year full time and week-end courses leading to Parangat (M.A.); (8) Kannada, Malayalam and Sindhi for those who have these as mother-tongues, as Sunday courses leading to Parangat (M.A.) and (9) **Parangat (M.A.) in Social Work (Rural)** as 2-year full-time courses. Applications will be accepted till 15th June, 1988. Admission qualifications : a graduate degree in IInd class in the same or related subjects. The Social Work (Rural) course is whole-time and residential with stay in hostels and participation in Community life is necessary and will be evaluated. As the course is rural-oriented, those with experience in rural reconstruction work will be preferred. Admission open to those with a degree in rural institutes or B.A. in IInd class in one of the Social Sciences. Besides the above, 2-year week-end courses leading to Anuparangat (M.Phil.) are offered in Archival Science, Peace Research, Science and non-violence and Buddhist Studies. Admission open to those with M.A. or equivalent degree in IInd Class. Two-year Vidyavachaspati (Ph. D.) Course for those with M. Phil. is also available in those subjects. A new degree course Vidyavaridhi (D. Lit.) will commence this year for those with Ph. D. Students in week-end courses also are expected to attend community-living exercises, camps and study tours.

(4) Correspondence Courses : Parangat (M.A.) in Gandhian Thought and in Education to M.Ed.

(1) Two-year course leading to Parangat (M.A.) on Gandhiji's life and work and the Gandhian Thought including social, economic, political, religious, spiritual and educational aspects. Admission open to those with graduate or an equivalent degree. A one-year Diploma Course with four papers is also offered. Those who do not have graduate degree, but are above 21 years in age can enrol in the diploma course.

(2) Shikshan Parangat (M.Ed.)

Admissions open to those with B. Ed. or equivalent degree. Those working as teacher-educators in primary teachers' training college can apply for correspondence course. Besides this, week-end courses of two years duration and full time courses of one year duration can also be taken.

(5) Granthalaya Visharad (B. Lib.) in Library Science

A full time course will start from June, 1988. Those with B.A. with second class are eligible to apply. Two-year course leading to Parangat (equivalent to M.Lib.) in Library Science is open to those who have completed B.Lib. All candidates are expected to read books (1) Gandhiji's life in his own words; (2) Community living—Babalbhai Mehta; (3) Revolution Through Education (Abridged); (4) The Nector of Indian Culture (The books are in Gujarati, Hindi versions may be available). These books will be sent on payment alongwith the application forms. The selection test will comprise two question papers of 200 marks of two hours each. Short objective questions would include questions on aims and objects of the Basic education (Nai Talim), Gandhiji's life and Thought, Ideals of Indian culture, questions on the subject in which the admission is sought and community living. The candidates will be informed of the dates of examination by mail. All students on admission, are expected to wear Khadi, participate in daily community congugation and community spinning and in all such programmes organised on the lines of Gandhian way. Duration of vacation and holidays are much less in comparison to other universities. Any student who remains absent for more than ten days in a term will not be eligible for granting the term. The students should buy three pairs of clothing of certified khadi. Those who are admitted in the hostel will bring their own beddings. Please write alongwith Rs. 3/- stamp to the concerned Principal or the Co-ordinator for application forms and details about the selection test.

Vinod Tripathi
REGISTRAR

National Council of Educational Research and Training

NCERT invites applications for the following posts :

1. **Senior Technical Officer**: [One post (Reserved for SC)] **Qualifications: Essential**: (i) A good degree in Mechanical or Electrical Engineering. (ii) At least 7 years professional experience in a responsible capacity in handling maintenance of plant, equipment and Store-purchase. **Desirable**: Knowledge of maintenance of plant and equipment (involving Mechanical & Electrical repairs). (ii) Knowledge of Govt. of India rules relating to purchase of Stores, finance etc., should have adequate experience in dealing with stores procedures including receipts and issues, custody, codification, inventory control and stores verification. (iii) Knowledge of estimating and cost accounting, budgetary control, project evaluation etc. (iv) Knowledge of project planning, monitering involving preparation of feasibility project reports. Should be conversant with PERT, CPM cost benefit analysis.

2. **Marketing Executive**: [One post (Reserved for ST)]: **Qualifications**: should have a second class Bachelor's Degree from a recognised University. At least 3 years experience in marketing and sales work in a reputable publishing organisation.

3. **Make-Up Artist**: [One post (Reserved for SC)]: **Qualifications**: **Essential**: (i) B.A. or equivalent. (ii) Diploma or degree from a recognised institution with specialisation in make-up. **Desirable**: 6 years practical experience of make-up in stage, film or television.

Note: For these posts (S.No. 1 to 3) candidates belonging to respective reserved categories only will be considered.

4. **Film Producer**: [One post (Reserved for SC)]: **Qualifications**: **Essential**: (i) Degree from a recognised University. (ii) Diploma in Film Production from a recognised institute such as National School of Drama/FTII/Madras Film School etc., with 3 years experience as Producer or 7 years experience of having worked as producer for short films. **Desirable:** Experience of Script-writing and also some teaching experience.

5. **Assistant Engineer**: [Three posts (Two rerserved for SC and One reserved for ST)]: **Qualifications**: (i) Degree in Electrical Engineering/Electronics/Electrical Communication Engineering or M.Sc. Degree in Physics with wireless communication or electronics as a special subject from a recognised University or equivalent. (ii) 3 years experience in operation and maintenance of TV/Broadcasting studios in a responsible capacity.

6. **Audio Radio Producer GR.I**: [One post (Reserved for ST)]: **Qualifications**: **Essential**: (i) Degree from a recognised University. (ii) 5 years experience of making Audio/Radio programmes, preferably for young children. **Desirable**: (i) Ability to handle all audio equipment including studio equipment. (ii) Knowledge of music, particularly background music.

7. **T.V. Producer GR.II**: [One post (Reserved for ST)]: **Qualifications**: (i) Degree from a recognised University. (ii) Diploma in Film direction or T.V. Production from a recognised institute, or 3 years experience in direction/production of Film/T.V. Programmes.

8. **Chief Editor**: [One post (Reserved for SC)]: **Qualifications**: (i) A Master's Degree of a recognised University. (ii) Minimum 10 years experience in compilling, editing, planning and supervising of publications, especially school textbooks, monographs and reports in organisations of repute. (iii) Knowledge of printing techniques and of typography. (iv) Should be proficient in English.

9. **Script Writer** [One post (Reserved for SC)]: **Qualifications: Essential**: (i) Degree from a recognised University. (ii) 3 years experience of writing, shooting scripts for film/TV. (iii) Proficiency in any on of the main languages mentioned in the 8th schedule of the constitution. **Desirable**: Research experience leading to script.

Note: Posts in S.No. 4 to 9 are reserved for the respective categories mentioned against each. However, in case suitable candidates belonging to the respective categories indicated above are not available, general candidates will be considered as per rules on the subject.

10. **Engineering Assistant**: [Two posts]: **Qualifications**: **Essential**: Diploma in Radio/Telecommunications/Electrical/Electronics/Communication Engineering recognised by the Govt. of India or Degree with Physics as one of the subject from a recognised University or Degree in Electrical Engineering from a recognised University or equivalent degree, or diploma in Sound Recording and Sound Engineering awarded by the Film and Television Institute of Poona. **Desirable**: (i) Knowledge of Wireless or Radio Engineering. (ii) At least 3 years of working experience in TV/Radio Studio or similar recording set up in any organisation.

11, **Marketing Executive**: [One post]: Qualifications as prescribed at S No.2.

Note: Posts at S.No. 10 and]11 are un-reserved.

SCALE OF PAY AND AGE LIMIT AS ON 1.5.1988

1. Senior Technical Officer : Rs. 3000-4500 Below 45 years.
2. Marketing Executive : Rs. 1640-2900 Below 30 years.
3. Make-up Artist : Rs. 1640-2900 Between 21 & 30 years.
4. Film Producer : Rs. 3000-5000 40 years.
5. Assistant Engineer : Rs. 2200-4000 35 years.
6. Audio Radio Producer Gr. 1 : Rs. 2200-4000 35 years.
7. T.V. Producer Gr. II : Rs. 1640-2900 35 years.
8. Chief Editor : Rs. 3000-5000 Below 45 years.
9. Script Writer : Rs. 1640-2900 35 years.
19. Engineering Assistant : Rs. 1640-2900 35 years.

Note: (a) Some of these posts are temporary but likely to continue on year basis. (b) There is no age limit for the employees of the Council. Age concession allowed for SC/ST candidates as per Govt. of India instructions. (c) The number of vacancies is tentative and is liable to change. (d) The selected candidates can be transferred to any of the establishments of the Council, any where in India. (e) If a candidate is found to be of exceptional merit, relaxation of qualifications, experience, age, etc. may be given by the Selection Committee in its discretion. (f) The prescribed qualifications are minimum and mere possession of the same does not entitle candidates to be called for interview. When the number of applications received in response to the advertisement is large, it will not be possible or convenient for the Council to interview all these candidates. The Council may then restrict the number of candidates for interview to a reasonable limit, on the basis of qualifications and experience higher than the minimum prescribed in the advertisement.

Application forms can be obtained from the Secretary, (Recruitment-III), Vth Floor, Room No. 8, National Council of Educational Research and Training (NCERT), Sri Aurobindo Marg, New Delhi-110016, enclosing an unstamped envelope (23cms × 10 cms) giving name of the post, serial number and advertisement number. The outer cover should be marked 'Request for application Form'. Separate application should be submitted for each post.

Those employed in Govt./Semi. Govt./Autonomous Organisations should send their applications through proper channel. They may, however, if they so desire, submit advance copy of their application direct to the Council enclosing the application fee, if applicable.

Completed application form alongwith attested copies of certificates of qualifications and experience etc., and a crossed Indian Postal Order for Rs. 8/- (no fee for SC/ST candidates) in favour of Secretary, NCERT, should reach him by **15th June, 1988**. Applications received without prescribed fee and/or received after the closing date will not be entertained. (Advt. No. TR-1).

Secretary.

National Council of Educational Research and Training,
Sri Aurobindo Marg, New Delhi-110 016

davp 88/60

CLASSIFIED ADVERTISEMENTS

UNIVERSITY OF ROORKEE
ROORKEE

Advt. No. EST(A)/2/A-86 (Advt.)/88

Dated : April 26, 1988

Applications on prescribed forms, obtainable from the Registrar, personally or by sending a self-addressed envelope (9" x 4") affixed with Rs. 2.20 paise stamps, are invited for the post of **DIRECTOR, ALTERNATE HYDRO ENERGY CENTRE, UNIVERSITY OF ROORKEE.**

Scale of Pay : Rs. 2250-2750

Qualifications & Experience : An outstanding Engineer/Technologist with established reputation who has made significant contribution to knowledge.

OR

An eminent scholar with published work of high quality and actively engaged in research with twelve years experience of teaching and/or research.

Job Requirement : The Director A.H.E C. will be required to initiate, coordinate and supervise the activities of the Centre which is an organisation mainly funded by the department of Non-conventional Energy Sources, Govt. of India for research work in the form of design, erection and commissioning of Non-conventional Energy Systems.

Candidates in employment are required to send their applications through proper channel.

Last Date of receipto f applications on prescribed form alongwith application fee of Rs. 10/- (By Bank Draft or Indian Postal Order in favour of Registrar, University of Roorkee) is **31.5.1988.**

REGISTRAR

REGIONAL ENGINEERING COLLEGE
HAMIRPUR (HP)-177 001.

Applications are invited for the following posts :

1. **Professors in the Pay Scale of Rs. 1500-2500 UGC (Un-revised)**

(1) Civil Engineering (Two Posts)

(a) Structural Engineering 1 No.

(b) Geo. Technical Engineering 1. No.

(2) Mechanical Engineering (Two Posts)

(a) Thermal Engineering 1 No.

(b) Design of Machines 1 No.

(3) Electronics & Communication Engg. (One Post)

(4) Computer Science and Engineering (One Post)

(5) Architecture (One post)

Educational Qualifications

Essential

1. Basic : Bachelor's Degree in appropriate branch of Engineering recognised by the University with atleast Ist Class at Bachelor's Degree and/or Master's Degree level.
2. Doctorate Degree in concerned branch of engineering/specialisation of subject in appropriate branch of engineering recognised by the University.
3. Atleast 10 years experience in teaching and/or Research in an Institution of University standard.
4. Experience of guiding research at Doctorate level.

Desirable

1. Professional/Scientific/Research work of outstanding merit.
2. Experience in curriculum development.
3. Published work of high standard.
4. Membership of professional bodies.
5. Age between 35 to 50 years.

II. **Assistant Professors in the Pay Scale of Rs. 1200-1900 (Un-revised)**

(A) Engineering & Technology Departments

1. **Civil Engineering (Two Posts)**

   (a) Environmental Engineering 1 No.

   (b) Structural Engineering 1 No.

2. **Electrical Engineering (Three Posts)**

   (a) Electrical Machines Design & Analysis 1 No.

   (b) Electrical drives or Computer application or Instrumentation Engineering 1 No.

   (c) Control System Engineering or Bio-Medical Engineering 1 No.

3. **Electronics & Communication Engg. (Three Posts)**

   (a) Digital Electronics and Digital Instrumentation. 1 No.

   (b) Micro Wave Engineering. 1 No.

   (c) Electronics & Communication Engg. 1 No.

4. **Computer Science and Engineering (Two Posts)**

   Thorough knowledge of both Software and Hardware.

(B) Applied Sciences Department

5. **Mathematics (One Post)**
6. **Chemistry (One Post)**

Educational Qualifications

Essential

(A) Engineering and Technology Departments

(1) A first class (or equivalent) Master's Degree/Doctorate Degree in appropirate field of Engineering/Technology.

(2) Consistently good academic record with a Bachelor's Degree in appropriate branch of Engineering / Technology. Ist Class at Bachelor's Degree and/or Master's degree level.

(3) Atleast 5 years experience in teaching/research in an Institution of University standard.

Desirable

(1) Professional / Scientific/Research work of outstanding merit.

(2) Experience in curriculum Development.
(3) Published work of high standard.
(4) Membership of Professional bodies.
(5) Age below 45 years.

(B) Applied Science/Humanities Departments

Essential

(1) A first class Master's Degree with M.Phil in the subject concerned of a recognised University/Doctorate degree in the appropriate subject of a recognised University.
(2) Atleast 7 years experience in teaching/research in an Institution of University standard.

Desirable

(1) Professional/Scientific Research work of outstanding merit.
(2) Experience in curriculum development.
(3) Published work of high standard.
(4) Membership of professional bodies.
(5) Experience of guiding research.
(6) Age below 45 years.

III. Lecturer in the Pay Scale of Rs. 700-1600 UGC (un-Revised)

(1) Civil Engineeing (One Post)
(2) Electrical Engineering (One Post)
(3) Mechanical Engineering (Two Posts)
(4) Electronics & Communication Engineering (Two Posts)
(5) Computer Science & Engineering (Two Posts)
(6) Economics (One Post)

Educational Qualifications for Engineering & Technology Deptt :

Essential

(1) Master's Degree in appropriate field of Engineeing/Technology.
(2) Consistently good academic record with a Bachelor's Degree in appropriate branch of Engineering/Technology. Ist class at Bachelor's Degree and/or Master's Degree level.
(3) One year's experience in teaching/research in an Institution of University level.
(4) Age below 45 years.

Educational Qualifications for Lecturer in Economics

Essential

1. A first class Master's Degree with M.Phil in the subject concerned of recognised University.
2. Atleast two years experience in teaching/research in an Institution of University level.
3. Age below 45 years.

Note

In the case of appointment of Lecturer (Engineering & Technology), if the candidate of requisite qualifications are not available, a candidate with first class Bachelor's degree in appropriate branch of Engg/Technology with consistently good academic record will be considered.

Such a candidate should obtain Master's Degree in Engineering/Technology within a period of 5 years failing which his service shall be terminated.

Other things being equal, preference will be given to the candidates belonging to SC/ST categories for appointment to the posts of Lecturers.

IV. Lecturer in Physical Education in the Pay Scale of Rs. 700-1600 UGC (One Post)

Educational Qualifications

Essential

1. A first class or 2nd class Master's Degree in Arts or Science with M.Phil from a recognised University.
2. Master's/Bachelor's degree in physical education from a recognised University.
3. About two years experience in the line in University or College.
4. Age below 45 years.

V. Assistant Horticulturist in the Pay Scale of Rs. 700-1200 (One Post)

Educational Qualifications

1. M.Sc. Horticulture or B.Sc. Agriculture with specialisation in Horticulture.
2. Two years working experience.
3. Age below 35 years (Relaxable upto 5 years in the case of SC/ST candidates).

VI. Junior Stenographers in the Pay Scale of Rs. 510-880 Plus Rs. 30/- Special Pay (Three Posts) One Reserved for SC. IRDP, One for General IRDP and One for Scheduled Tribe.

Educational Qualifications

Essential

1. Matric with two years experience with a minimnm typing speed in English and Hindi of 35 and 30 w.p.m. respectively and Shorthand in English with speed of 100 w.p.m. and in Hindi 80 w.p.m.
2. Age between 18 to 32 years (Relaxable upto 5 years in the case of SC/ST candidates).

VII. Technician Grade-III in the Pay Scale of Rs. 570-1080 (Four Posts) Reserved for SC-1, Genl-1, Ex/SM-1 & ST-1

(a) Civil Engineering Department (Hydraulic/Structural) 1 No.
(b) Elect. Engg. Deptt. (Machine installation & Related works) 1 No.
(c) Mechanical Engg. Deptt. (Welding) 1 No.
(d) Electronics & Communication Engg. (Testing and Use of Electronic Instruments) 1 No.

Educational Qualifications

Essential

(1) Matric with Certificate/Diploma from ITI or any equivalent/higher Institution recognised from University/Govt./Board in the respective Trade.
(2) 5 years experience in any Engineering / Technology Institution or University or equivalent Institution. This can be relaxed in exceptional cases.
(3) Age between 18 to 32 years (Relaxable upto 5 years in the case of SC/ST candidates).

VIII. Semi-Professional Assistant in the Pay Scale of Rs. 570-1080 (One Post)—Reserved for SC.

Educational Qualifications

Essential

1. B.A./B.Sc./B.Com.
2. Certificate Course/Diploma in Library Science of minimum one year duration.

3. Knowledge of English Type-writing at the speed of 30 w.p.m.

4. Minimum one year working experience in a College/Technical Library.

5. Age : 18 to 32 years. (Relaxable upto 5 years in the case of SC candidates).

VIII. Computer Operator in the Pay Scale of Rs. 570-1080 (One Post)

Educational Qualifications

Essential

(1) B.Sc. With Diploma in Computer Programming (atleast one year's duration from a University or an Institution of equivalent standard.

(2) Atleast 5 years experience preferably in a recognised University/Institution. This can be relaxed in exceptional cases.

(3) Age between 18 to 32 years (relaxable upto 5 years in the case of SC/ST candidates).

IX. Draughtsman in the Pay Scale of Rs. 570-1080 (Two Posts) Reserved for SC-1, Genl-1.

(a) Civil Engineering (One Post)

(b) Electrical Engineering (One Post)

Educational Qualifications

Essential

(1) Matric with Science and Math from recognised School Board of Education or Equivalent.

(2) National Trade Certificate in the Trade concerned.

(3) 3 years experience in the line in a reputed Engineering establishment or Government Engg. Department.

(4) Age between 18 to 32 years (Relaxable upto 5 years in the case of SC/ST candidates).

X. Steno Typist in the Pay Scale of Rs. 400-600+ Rs. 25/- SP

Educational Qualification

Essential

1. Matric with knowledge of typing in English with a speed of 30 w.p.m. and Shorthand in English with a speed of 100 w.p.m.

2. One year experience in the line preferably in a University or College.

3. Age between 18 to 32 years,

XI. Clerks in the Pay Scale of Rs. 400-600 (Posts Likely to be created) Reserved (One each for SC, SC. IRDP, BC, BC.-IRDP, ST, ST.-IRDP, General, Genl. IRDP).

Educational Qualifications

Essential

1. Matric with typing speed in English and Hindi of 30 w.p.m. and 25 w.p.m. respectively.

2. One year experience in the University or College.

3. Age between 18 to 32 years (Relaxable upto 5 years in the case of SC/ST candidates).

Other Terms and Conditions

The posts shall carry the allowances as admissible by the State Government of HP/Approved by the Board of Governors from time to time.

Candidates in Government service/Semi Government Service/Public Undertaking must apply through proper channel.

Age limit relaxable in case of well qualified candidates and Govt/Semi Govt./Public Undertaking employees.

No Rail/Bus fare or TA/DA will be paid to the candidates appearing for interview.

The Principal reserves the right to increase or decrease the number of posts, to fill up or not to fill up the posts/or to call only selected candidates for interview.

The applications should reach the Principal, Regional Engineering College, Hamirpur-177 001, Himachal Pradesh by **10th June, 1988.**

The candidates should attach with application a self-addressed envelope 4" x 10" duly stamped worth Rs. 5.60 superscribed 'APPLICATION FOR THE POST OF (NAME OF THE POST) REGIONAL ENGINEERING COLLEGE, HAMIRPUR (HIMACHAL PRADESH).

The application should be typed, giving the name of candidate, father's name, date of birth, address for correspondence, permanent address, Educational qualifications, category to which belongs, etc. etc. The Photostat attested copies of testimonials (duly attested by the candidate himself) alongwith a recent passport size photograph should be attached with application.

Each application should accompany a crossed postal order in the name of Deputy Registrar (Accounts), REG, Himirpur (HP) amounting to Rs. 7.50 paise. No Draft/Cheque shall be accepted. In the event of candidate not being called for interview or not being selected for the particular post, the Postal Orders shall stand forfeited to the Regional Engineering College, Hamirpur (HP)-177 001.

INDIRA KALA SANGIT VISHWAVIDYALAYA

KHAIRAGARH. (M.P.)

No. B.S./UGC JRF/88-89/774

Dated the 25th April, 1988

NOTIFICATION

Applications are invited for the award of 10 UGC-Junior Research Fellowships in Music (in all branches), Painting/Fine Arts, from the candidates who have passed the National Eligibility Test conducted by the U.G.C. and who have registered or propose to register for Ph.D./D.Mus. Programme in this University,

The JRFs awarded by the University are tenable only at this University and the awardee under the scheme is requested to do whole time research work under the approved guide in a subject at this University.

The value of JRFs is Rs. 1,000/- per month for the first two years with an annual contingent grant of Rs. 5,000/- per annum.

The value of fellowship will be raised to Rs. 1,200/- per month after rigorous evaluation of the work of the Scholar on completion of a period of two years.

The application form may be obtained from the Registrar.

Applications for the fellowships must be in the prescribed form and they have to be forwarded to the Registrar, Indira Kala Sangit Vishwavidyalaya, Khairagarh, 491 881, so as to reach this office **not later than 15th June, 1988,**

REGISTRAR

GURU GHASIDAS UNIVERSITY

ITI BARRACKS, KONI, BILASPUR, M.P.

Advertisement No. Estt/UTD/88/2572 **Dated : 28-4-88**

Applications in the prescribed forms are invited for the following posts in the University Teaching Departments so as to reach the undersigned on or before **31.5.1988.**

	S. No.	Department	Post	Post
I	1.	Department of Industrial Relations.	One Professor	One Lecturer
	2.	Department of Forestry, Wild Life & Eco-Development.	One Professor	One Lecturer
	3.	Department of Languages & Tribal Dialects.	One Professor	Two Lecturers
	4.	Social Anthropology & Tribal Development	One Professor	One Lecturer
	5.	Mass Communication & Journalism.		One Lecturer
	6.	Department of Mathematics and Statistics.	One Reader	One Lecturer

II The scales of pay for the above posts are as follows :

Professor — Rs. 1500-60-1800-100-2000-125/2-2500
Reader — Rs. 1200 50-1300-60-1900
Lecturer — Rs. 700-40-1100-50-1600

III The scales of pay are likely to be revised in near future.

IV **Qualifications & Experience**

Professor of Industrial Relations : He must have obtained Post-Graduate degree or diploma in Mining and Teaching and/or Administrative experience of atleast 10 years in the University or in reputed organisations/institutions.

Professor in Forestry : He must have obtained Post-Graduate degree or diploma in Forestry and must have worked for 10 years in the field of forestry.

Professor of Hindi : The qualifications shall be as laid down by the University Grants Commission, New Delhi. He should have experience of establishing institute of languages & be conversant with tribal culture & ethos.

Professor in :

(a) **Sociai Anthropology & Tribal Development**
The qualifications shall be the same as laid down by the University Grants Commission, New Delhi & must have worked in tribal development field.

(b) **Mass Communication & Journalism**
The qualifications shall be the same as laid down by the University Grants Commission, New Delhi & must have worked in tribal development field.

Lecturer in the Department of Industrial Relations — As per UGC qualifications with specialisation in the field of labour welfare.

Lecturer in the Department of Forestry, Wild Life and Eco-Development : — As per UGC qualifications with specialisation in the field of the Management of Forestry. He must have Diploma in Forestry or Practical experience of atleast 5 years in the field of forestry.

Lecturer in the Department of Languages and Tribal Dialects. — As per UGC Qualifications with specialisation in the field of Gondi or Santhali etc.

Lecturers in the Department of Languages & Tribal Dialects : (Reserve for ST) — As per UGC qualifications of English Lecturer with specialisation in Methodology of teaching English.

One Lecturer in Social Anthropology : (Reserve for SC/ST). — As per UGC qualifications with specialisation in the field of Tribal Development.

One Reader in Mass Communication & Journalism. — As per UGC qualifications.

One Reader and One Lecturer in Mathematics : — As per UGC qualifications.

V Application forms can be obtained from the University office on payment of Rs. 5/- or by making a written request to the Registrar accompanied by a Crossed Postal Order of Rs. 10/- drawn in favour of the Registrar Guru Ghasidas University, Bilaspur.

VI The University reserves the right not to fill up the posts.

R. C. Parmar
REGISTRAR

THE UNIVERSITY OF BURDWAN
RAJBATI : BURDWAN

WEST BENGAL

Advertisement No. 14/87/88

Dated : May 6, 1988

Applications in the prescribed form are invited for the post of "Deputy Registrar" in the approved scale of pay of Rs. 1200-50-1300-60-1900/-. The post carries dearness and other allowances and pensionary benefits according to the Rules of the University.

Educational Qualifications & Experience

(a) Essential

- (i) Uniformly good academic record with a B+ Master's Degree or its equivalent.
- (ii) At least 10 years's experience in a position involving supervision, control and planning of Examinations, administration of Colleges or in a Institute of Higher Learning or Government or other Academic Bodies. At least 5 years of the 10 years' experience should be in higher position of high level administration.
- (iii) Age not less than 35 years. Relaxable in case of exceptionally qualified candidates.

(b) Desirable

- (i) A Doctorate Degree or published paper of high standard.

  or
- (ii) Experience of at least 10 years in a fairly senior position in any academic Institution like a College or a University or a Research Organisation.

The choice of the Selection Committee may not necessarily be confined to those who apply formally.

For application form and other information, please apply to the Registrar, University of Burdwan, Rajbati, Burdwan, with a self-addressed stamped (Re. 1/-) envelope (9" x 4").

Last date for submission of application with the requisite fee of Rs. 5/- is **May 28, 1988**.

P. Banerjee
REGISTRAR

TECHNICAL TEACHERS' TRAINING INSTITUTE

SECTOR 26, CHANDIGARH

Advertisement No. 7/88

Applications are invited by the Principal for the post of Professor in educational Management in the pay scale of Rs. 1500-2500 UGC (Pre-Revised). The scale is likely to be revised in near future.

The position is temporary but is likely to continue.

2. Qualifications & Experience (in Brief)

Doctorate Degree/1st class Master Degree in the Relevant Field with 8-15 years experience.

Note : Qualifications in lieu of longer experience in lieu of higher qualifications may be relaxed by the competent Authority in case suitable candidates with prescribed qualifications and experience are not available.

3. The post carries allowances as applicable to Central Govt. Employees stationed at Chandigarh. In addition LTC, GPF-cum-pension-cum-gratuity/CPF-cum-gratuity; medical reimbursement and leave are admissible as per rules. Higher start of pay admissible for deserving candidate. In case candidate not found suitable for this position, one can be offered lower post, if willing to accept.

4. Second class railway fare to and fro is admissible for attending the interview.

5. The upper age limit is 48 years.

6. Application forms and detailed information regarding qualifications, experience and job description etc. can be obtained from the senior administrative officer of the institute on requisition by sending a self-addressed unstamped envelope (28 cm x 12 cm). Applications complete in all respect should reach the institute on or before **10th June 1988**.

C.L. Chadha
SENIOR ADMINISTRATIVE OFFICER

GURU NANAK DEV ENGINEERING COLLEGE

BIDAR-MAILOOR ROAD,
BIDAR-585 403 (KARNATAKA)

ADMISSION NOTICE

Applications are invited in the prescribed form for admission to the first year of four year Bachelor of Engineering Degree Course in Civil, Electrical, Mechanical, Industrial & Production, Automobile, Electronics & Communication Engineering & Computer Science and Five year Bachelor of Architecture Engineering, for the academic year 1988-89.

Application forms alongwith Prospectus can be had from the College Office on payment of Rs. 110-00 (Rupees one hundred & ten only) on any working day. The Application forms can also be had by post by remitting an amount of Rs. 125/- (Rupees one hundred & twenty-five only) through a crossed Demand Draft drawn in favour of Principal, Guru Nanak Dev Engineering College, Bidar. No other mode of payment will be accepted. Application forms duly completed, alongwith attested copies of all certificates required to be furnished will be accepted on or before **15th July, 1988**.

S. Joga Singh — **Dr. M. . Sukhija**
CHAIRMAN — **PRINCIPAL**

UNIVERSITY OF KERALA

UNIVERSITY BUILDINGS, TRIVANDRUM 695 034

No. PR. 1201/I2/1988 **Dated : 26-4-1988**

NOTIFICATION

Applications are invited from qualified candidates for appointment to the following posts in the University :

Sl. No.	Name of Post	Department	No. of Posts	Scale of Pay	Remarks
1	Lecturer	Sanskrit	1	Rs. 1300-75-2725	Reserved for Muslim Community
2	Technical Assistant	University Observatory	1	Rs. 950-1640	Reserved for Ezhava Community

Qualifications

Post 1 A First Class Master's Degree of an Indian University or an equivalent qualification of a foreign University in Sanskrit and two years' approved research or teaching experience in a College or University.

OR

A Second Class Master's Degree in Sanskrit with not less than 50% marks and a Ph.D. Degree or published research work of a high standard.

Post 2 1. A First or Second Class Master's Degree in Physics.

2. Experience in the line.

Age (as on 1-1-1988)

Post 1 Not more than 40 years
Post 2 Not more than 30 years
(Usual relaxation for SC/ST and OBC)

If no candidate from the reserved community is found suitable applicants from other reserved communities will be considered in accordance with the rules relating to communal rotation. In the absence of suitable candidates from any of the reserved communities the vacancy will be treated and filled up as Open Merit.

Application forms and details can be had on request specifying the post, from the University Office, on production of a self-addressed stamped (Rs. 2.60) envelope (13 x 28 cms.) along with a challan receipt for Rs. 2/- (Rupees two only) remitted to the credit of Kerala University Fund from the State Bank of Travancore (in the case of persons residing inside the State) or Crossed Postal Order for the amount payable to the Finance Officer of the University (in the case of persons residing outside the State only). The requests shall be addressed to the University Deputy Registrar (Administration).

The last date for receipt of completed applications is **4th June, 1988.**

Prof. S.K. Rajagopal
REGISTRAR

UNIVERSITY OF KALYANI

P.O. KALYANI, WEST BENGAL-741 235

Advt. No. 1/88 **Dated : 2.5.88**

Applications in prescribed form are invited for the undermentioned posts on the scale mentioned below with allowances as admissible under the University rules.

Department of English : Professor of English —One Post
Spl. Renaissance/Restoration.

Department of History : Research Associate —One Post

Experience of active research in Local History as requisite specialisation for the same.

Age : Professor : Preferably below 50 years. Research Associate : Preferably below 40 years. Scale of Pay: Professor : Rs. 1500-60-1800-100-2000-125/2-2500. Research Associate : Rs. 1600-2000.

The principle of reservation of posts for the candidates belonging to Scheduled castes and Scheduled tribes shall be followed to the extent possible as per orders issued by the State Govt. from time to time.

A circular containing details of qualifications, pay and allowances and other relevant information may be had from the office of the undersigned from 10.5.88 to 30.5.88 between 11.30 a.m. to 3. p.m. working days (Saturdays upto 1 p.m.) separately or alongwith the application form on payment of Rs. 7.50 (charge one-fourth for **SC/ST** candidates) by current crossed Indian Postal Order in favour of the "University of **Kalyani**" personally or by sending a self-addressed stamped (Rs. 1-80) envelope (25 c.m. x 12 c.m.).

Application forms complete in all respects according to the instructions given in the circular must reach the office of the undersigned on or before **30.5.88.**

SC/ST candidates must produce documents of caste from the appropriate authority (S.D.O.) at the time of collecting forms.

No TA is admissible for attending interviews.

P. Sircar
REGISTRAR

MAHARSHI DAYANAND UNIVERSITY

ROHTAK

Advertisement No. 1/88

Applications on prescribed proforma are invited for the following posts :

Teachers-4 (University Campus School) in Physics/Maths Bio-Sciences and Social Sciences

(Rs. 1400-40-1600-50-2300-EB-60-2600)

Qualifications

B.A./B.Sc. with B.Ed. or equivalent degree in Education. Three years' teaching experience of a recognised English Medium School—NCERT/CBSE syllabus.

Experience relaxable in the case of candidates with good public school education background and higher qualifications.

Assistant Teachers-2 (University Campus School) in English and Hindi—One each (Rs. 1200-30-1560-EB-40-2040)

Qualifications

B.A./B.Sc, with B.Ed. or equivalent degree in Education. One year teaching experience of a recognised English Medium School—NCERT/CBSE syllabus. In the case of Hindi, the candidate must have offered Sanskrit as one of the subjects at graduation level.

Fxperience relaxable in the case of candidates with good public school education background and higher qualifications.

Assistant Teachers-2 (University Campus School) for Nursery/K.G. Classes (Rs. 1200-30-1560-EB-40-2040)

Qualifications

B.A./B.Sc. with Nursery/Montessory/Pre-School training Certificate / Diploma with one year experience of handling small children in a recognised English Medium School.

P.T.I. (One) (University Campus School)

(Rs. 1200-30-1560-EB-40-2040)

Qualifications

A Bachelor's degree in Physical Education of three years' duration of a recognised University;

OR

Degee of B.P.Ed. of a recognised University;

OR

D.P.Ed. awarded by a recognised University/Institution after training of a minimum one academic session, provided that the admission qualification for the Diploma is atleast a University degree.

Age for all posts not below 18 years.

Other allowances and benefits of contributory Provident Fund for all posts admissible as per University Rules. Higher start admissible in deserving cases. Knowledge of Hindi essential for all posts. Number of posts is liable to be increased or deereased. Qualifications relaxble for internal candidates.

The applications will be screened by a Committee to be approved by the Vice-Chancellor. The Screening Committee will be competent to screen applicants and classify them on the basis of qualifications and experience and call for interview only the selected candidates.

Reservation for Ex-Servicemen/BC/SC/ST candidates as per rules. However, where the candidates under reserved categories are not available, the posts will be filled up from amongst the general category's candidates.

Application forms can be had from the Manager (Printing & Publication), M.D. University, Rohtak on payment of Rs. 2/- at the counter or Rs. 3/- by ordinary post. Applications, complete in all respects, supported by attested copies of testimonials and Crossed Indian Postal Order(s) for Rs. 10/- in favour of the Finance Officer, M.D. University, Rohtak payable at Post Office, Rohtak be sent to the Registrar, M.D. University, Rohtak by **27th May, 1988.** However, no application fee from the candidates belonging to SC/ST/BC/Ex-SM is required.

REGISTRAR

GUJARAT AYURVED UNIVERSITY

ADMINISTRATIVE BHAVAN HOSPITAL ROAD
POST BAG No. 4,
JAMNAGAR

Applications are invited for the following posts in the University:

Sr. No.	Name of the Post	Pay Scale Rs.	
1.	Director of Botanical Garden	1500-2500	(Likely to be revised)
2.	Professor Basic Principles	1500-2500	,,
3.	Lecturer Basic Principles	700-1600	,,
4.	Leeturer Kaumarbhritya	700-1600	,,
5.	Clinical Registrar—Kayachikitsa	500-900	,,
6.	Reader Dravyaguna (U.G.)	2500-4200	
7.	Pharmacognocist	3000-4500	
8.	Biochemist	3000-4500	
9.	Pathologist	3000-4500	
10.	Darshanik	2500-4200	
11.	Bhashashastri	2500-4200	
12.	Pharmacy Superintendent	2500-4200	
13.	Director of Physical Education	3000-4500	
14.	Chief Accounts Officer	3000-4500	
15.	Deputy Registrar	3000-4500	

Details of pay scale, qualification, age and experience in the above posts sho be submitted in the prescribed form which can be had by post from the Regist Gujarat Ayurved University, Jamnagar by sending a self addressed 11" x 5" si duly stamped of Rs. 1.90 ps. alongwith a request indicating the name of the so as to reach on or before 25.5.88. The last date for receipt of complete appli tions is **10-6-88.** Only Indian National need apply.

The University reserves the right to fill up or not to fill up the post adve and/or to call only selected candidates for interview.

A.H. Mehta
ACTING REGIST

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University News

MONDAY, MAY 23, 1988 Rs. 1.50

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fth Convocation of Narendra Deva University of Agriculture & Technology, Faizabad. (From L to R) Dr. R.P. Singh, Pro-Vice-Chancellor, Dr. Kirti Singh, Vice-Chancellor, Dr. N.S. Randhawa, Director-General, ICAR, who delivered the Convocation Address and Shri S.M. Shamim, Registrar.

Birla Institute of Technology and Science

PILANI (RAJASTHAN) 333031

FACULTY AND OTHER POSTS

Recruitment Advt. No. FR/1/88

Applications are invited for faculty positions at various levels (Professors, Associate Professors, Assistant Professors, Lecturers, Assistant Lecturers and Teaching Assistants). Appointments are proposed to be made at all levels in the following disciplines : chemical, civil, electrical and electronics and mechanical engineering; computer science, instrumentation, pharmacy, management, biosciences, chemistry. economics, mathematics, physics; science and technology development, museum studies, engineering technology; humanities and social sciences; and English.

2. Applications are also invited for the posts of Workshop Superintendent, Maintenance Officer, Registrar, Librarian, and Admissions, Training and Placement Officer, (in the salary scales of Professors) where invariably the persons selected would be required to do teaching and other academic duties in addition to normal duties attached to these posts.

3. A certain number of faculty is required for the Institute's Local Study Centres under the Distance Learning Scheme in Delhi, Calcutta, Madras, Bombay and Neyveli.

4. Applications are also invited for the post of two Deputy Directors in a scale of pay higher than that of the Professor, from academic persons with experience in educational planning and administration.

5. All the necessary details are available in the free booklet entitled "Introducing BITS to Prospective Faculty", which can be obtained by writing to the undersigned marking your request 'FR/1/88' enclosing a self-addressed envelope (30 x 25 cms.) with stamps worth Rs. 5.00. For outside India Air Mail, enclose a Bank Draft for Rs. 33/- or equivalent foreign currency payable to BITS on UCO Bank, Pilani/State Bank of Bikaner and Jaipur, Pilani.

6. The deadline for application for posts in paragraphs 2, 3 and 4 is 5 P.M. **July 1, 1988**. For posts in paragraph 1, this Advertisement will be valid for one year from the date of issue and the Institute will review more than once all cases that accumulate during this period.

REGISTRAR

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3 JUN 1988
C.F.T.R.I., MYSORE

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Editor :

SHORT CYCLE EDUCATION

R. Dhandapani*

The Twin Challenge

Unemployment and poverty are the two key fields wherein the country could not make adequate headway since independence. To quote one of the recent World Bank Reports on Developing Countries, India continues to remain at the bottom among the world's poorest countries even after over three decades of continuous and serious planning. As a matter of fact, 5 per cent annual growth rate continues to elude us even today.

Right perspective and right sense of priorities are all the more important and necessary for a quantum-jump. Economic independence which could banish the twin challenges before the country viz. unemployment and poverty calls for bold and radical departures from the beaten track.

Development, though until recently stood for a rise in the per capita income on the rapid growth of industrialisation, of late, is increasingly realised that it is not just growth, but growth centred around man. Being an integrated whole, development starts not with goods but with people and their education without which all resources remain latent and untapped. 'The focus has to be not on machines or institutions but on people', as rightly observed by the Willy Brandt Commission on International Development issues.

Human Resource Imbalance

The defect and deficiency in the strategy of development is the lack of building up the human resources within the existing value system for effective motivation and involvement in development. The only alternative to correct the human resource imbalance is to serve the society with a proper educational base that would play its part to meet the vital and varied challenges of development.

To look at education, particularly higher education, in isolation can no longer be valid; rather the inter and intra linkages between education and employment; education and agriculture; education and trade; education and industry and so on need a closer scrutiny in order to reform education itself so that this sub-sector will be more responsive and alive to the intricacies and demands of the other sub-sectors. When the sub-systems do not remain exclusive but mutually reinforcing, the total system tends to become well knit and also ensures a smooth sailing of different sub-sectors between and among them. Besides, the world of education should be opened up fully to the world of employment, if specialisation is to be successful with its dual educational and employment implications.

While the enrolment in higher education during the year 1985-86 was 35.71 lakhs, 1986-87 saw an enhanced enrolment of 36.82 lakhs and a still further encouraging trend is noticed in 1987-88. But, over the years, it has been conclusively proved that a rise in enrolment has invariably resulted in a corresponding increase in unemployment. The problem persists on two counts : firstly, a lack of foresight and seriousness, if not inability, to design and offer need-based courses in anticipation of the new and emerging demands; and secondly, a strategy to keep off a sizeable section of students from aimless overcrowding of universities/high educational institutions.

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*Consultant, Educational Consultants India Ltd., New Delhi

Manpower Assessment

The unprecedented explosion in higher education has left us with no other option except to make a proper assessment of manpower requirements in tune with the growth of economy, pace of technology, mobility of labour force, availability of infrastructural facilities and human resources and to effectively relate these estimates of manpower needs to educational inputs. A considerable measure of imaginative planning is required to ensure the employability of end products at every level and to identify further slots for employment besides opening up new avenues.

The inevitable question that follows is the role of education in such a fast changing scenario and other attendant factors upon its role. Should not the priorities of education synchronise with the challenges in the offing ? If so, to what extent ? And to what extent, the planners are justified in making education subject to the demands of economy ? Can the over-riding interest of society be equated with the desire for productivity ?

While estimates of these manpower requirements could help plug the loopholes, care should be taken that the end products would assume personal and collective responsibilities on the basis of a thorough understanding of the techniques used in the economy and the ways of life which the economy tends to impose on society in the normal course of events.

Without sacrificing the quality of the each individual item, a car or television set can be mass-produced by machinery when a new model is perfected. But the same curricula and the same methods practised by different teachers with different pupils seldom produce identical results. The human factor with all the diversity and uncertainties counts much. Models must be sought in the world of education itself in order to ensure that the University remains attuned to the specific nature and character of the social/economic surroundings.

Short Cycle Education

The short cycle education has a two fold aim o preventing overcrowding of Universities and to provide employment by awarding degrees which are o immediate value in the labour market. Introduced by the United States and followed by Canada, France Japan and certain European countries such as Norwa and Yugoslavia, the common feature in all these systems is to offer short cycle education lasting two o three years for students who are unable to take lon courses, either for reasons of aptitude or because the cannot afford it.

No doubt, the short cycle education makes it possible to overcome many known difficulties but the assurance of immediate employment was not enough provide an incentive. Young people are much mor concerned about their career advancement than abo the first job they take. But we may have to impr vise and build an indigenous model, based on the e periments already undertaken, that would effective respond to the actual needs in tune with Alwin T ffler's dictum "tomorrows development strategies w be indigenous, matched to actual local needs".

The Central Council of Rural Institutes

As envisaged by the National Policy on Educati and in pursuance of the policy directives on ru education, a Working Group was constituted by t Ministry of Human Resource Development under t chairmanship of Dr. M. Aram to formulate detail schemes for the development of a pattern of educati related to the needs of rural communities and to cha out a well planned programme of encouragement. T Government of India is also committed to set u Central Council of Rural Institutes "which will ta the initiative in the implementation of the above p gramme by providing resource support both for development of infrastructure as well as conceptu methodological and academic inputs in design structure of programmes, development of teaching learning materials, evaluation procedures, etc." as the Programme of Action of the Ministry of Hum Resource Development, Govt. of India. Several mea res to be taken up by the Central Council include the strengthening of the content of the rural inst tions already in the field with emphasis on scie and technology; and (ii) designing a variety of cou at tertiary level around emerging rural occupati besides starting new Rural Universities/Institutes ed on the concept of micro-planning and tomorro technology for rural development.

(*Continued on pag

Issues in College Planning and Management

Manju Narula*

In order to study the problems of Planning, Finance and Administration faced by the college principals, we analysed 160 case studies prepared by college principals who in previous years attended programme at National Institute of Educational Planning and Administration (NIEPA) during 1982-83 to 86-87. Out of 160 case studies, 60 are of co-education colleges, 57 of women's colleges, and 43 are of colleges having concentration of SC and ST students. The problems which have been highlighted by the college principals are grouped under following broad heads :

1. Administration
2. Planning for Development
3. Curricula
4. Research
5. Conduct of Examination
6. Finance
7. Other Issues

Administration

The salient points which emerged from the case studies regarding administrative practices are :

1. There should be some coordination between the college, university and government, because college administration and management are controlled by both the university and the Government; University has academic control while Government has financial control. Both of these function at cross purposes and the college has to work under both. The college should have some autonomy especially in matters of restructuring of courses and in conducting examinations.

2. There is no coordination between the State Govt. and the UGC even in policy matters. The State Govt. assigns 24 teaching periods (tutorial included) to every teacher whereas UGC specifies 18 periods.

3. UGC lays stress on staff improvement and teacher orientation programmes but the State Govt. does not extend any help. In fact, most of the UGC schemes cannot be implemented because of the apathy of the State Govt. The salary payment is undertaken by the State Govt. The UGC is supposed to look after the development aspects. Often, screening of the proposals for development grants takes a long time in the UGC offices, delaying the projects and posing further problems due to the escalation of prices of building material.

4. Even in the matter of appointment of staff, a lot of time is wasted and teaching suffers. The process is tedious and long winding, starting with advertisement in Newspapers, screening of applications, issuing call letters, fixing the date of interview to suit the employment exchange officer, and finally approval is to be sought from relevant bodies. If there is any hurdle in between, the process comes to a halt at the expense of the teaching or office work of the college.

5. There should be uniformity in administrative practices between private colleges and Govt. colleges.

6. Administrative procedures are not simplified and restrictions imposed by Govt. are too many. If one wants to open any new courses like electronics, fisheries, agriculture, paper pulp technology, industrial chemistry, etc. based on the socio-economic needs of the region, one faces many difficulties because the state Govt. takes very long time (4-5 yrs.) to sanction the posts of teachers in these new courses and the college has to fall back upon its inadequate resources to pay the lecturers for a considerable period of time.

7. Too much decentralisation at Govt./university levels has made it difficult for the principal to take quick decisions. Owing to small number of administrative staff there has been increased workload on the employees; resulting in slow communications and poor feedback to the office.

**National Institute of Educational Planning and Administration, New Delhi.*

8. Admissions are not done taking into consideration the infrastructural facilities, generally there are difficulties regarding library and laboratory facilities. Uniform rules and regulations should be framed for admission. Merit should be the basis for admission. There should not be any attempt to accommodate favourites.

9. The recruitment of teachers is not rationalised resulting in very high proportion of ad hoc teachers, sometimes as high as 50%. These teachers do not devote their time to teaching with full vigour due to frustration.

10. Student unrest is due to student union elections, as well as interference of local politicians. Sometimes weak administration at the university level also creates student unrest. It was suggested that if the student unions are formed on the basis of the excellence of students in academic as well as curricular activities, the role of student unions will be constructive; university should check the political interference in the college administration.

11. Students, hailing from different strata of society represent different socio-economic backgrounds. The principal has to cope with their guardians, which form a heterogenous group. The teaching staff have an ethos of their own. It is the task of the principal to coordinate these diverse agencies.

12. Most of the colleges are not sent the various guidelines issued by the UGC and as a result thereof these are not benefited by the UGC assistance. Most of the funds released to the university by the UGC are spent on the development of the University campus and the colleges remain starved.

Suggestions

1. There should be liaison officers appointed in the Secretariat or the Directorate of Higher Education whose main job should be to visit the colleges to find out their problems and to suggest to the Govt. the ways and means to solve these problems. They should enjoy the status of a Senior Professor/Principal of a college and should be able to pay attention to the bottlenecks and get the various sanctions for expenditure expedited. Whenever any college principal has any difficulty, he should contact the liaison officer and get the required expenditure, approval of lecturers and other facilities sanctioned for the college.

2. The University Professors should not live in their own ivory tower thinking that they are superior to all the college lecturers. They should often visit the colleges to give extension lectures to them. This interaction between the university and college teachers will go a long way not only in widening the mental horizon of the colleges but also in keeping them acquainted with the latest information; such visits of the university professors to the colleges and vice versa should be made compulsory.

3. The unhappy state of affairs as it prevails today regarding the fight between the university and the govt. should stop at once. If the govt. and the university come to terms, a healthy tradition will be set up. The officers of these two agencies should often meet and take stock of the situations and things.

4. The Govt. should devise such a formula as may enable the colleges to receive the various grants in time.

5. Govt. should set up separate Boards of Higher Education which should look after the educational needs including the conduct of examinations of the Degree colleges in States.

6. Every state should have its own UGC. This state UGC should finance the plans of the colleges and issue guidelines for their development.

Planning for Development

Expertise for planning is very important in the institution. Educational planning should be done at all those levels of administrative set up where decisions are taken. No comprehensive programme of educational development can be put across unless planning is done at all the three levels.

Financial handicaps create a lot of obstacles in the steady growth of academic life. However, with Govt. & UGC aids the most common needs are met and without looking into the individual needs of a college, the Govt. has generalised the needs of the colleges in the state as a whole. Therefore planning, for development of the college initiated by the principal concerned is always neglected.

Lack of planning may be due to the fact that it is not conceptualized. In some of the colleges even the staff committees or planning cell did not exist.

Curricula

Almost each end every principal faces the problems as to how to make curricula meaningful and relevant. Following are some of the specific points which emerged from the case studies :

1. If a college is surrounded by a village where agriculture is considered as the main source of income and livelihood, then the curricula should be based on agriculture. In the curricula there must be provision for proficiency in English language, science, fine arts, etc. If facilities for such courses are provided, those who want to interact with development agencies and seek employment in this field later, will not face any problem.

2. During the three years' course, the students should undergo in addition to the usual curricula, a course in some trade, like tailoring, laundry, stitching, carpentary, bee-keeping book binding, poultry farming, etc. summer vacations can be utilized for this purpose.

3. In changing socio-economic pattern, it would be better to introduce typing/secretarial course, business management, banking, accountancy, sugar technology, which are relevant to local development needs. Alongwith humanities and science or social science courses for the local students, curricula must be supplemented with practical training for livelihood.

4. Short and intensive job oriented course should be introduced instead of lengthy and often not too relevant courses as prevailing at present.

5. Medium of instruction for colleges in rural areas; there is more demand for instruction in vernacular, whereas in urban areas the demand is for English.

6. Where there are tribal and non tribal students together, the dichotomy becomes very obvious; the tribals have a rich cultural heritage, the students with urban background seem to do better academically.

7. Schemes like "Earn, While You Learn" when introduced, channelise students' energies and also increase student loyality to the institution.

In this way education given to students would be well rounded which would enable them to shoulder whatever respsonsibilities come their way with determination, courage and discipline.

These curricula, based on socio-economic background would be successful only when teachers are given an opportunity to update their knowledge in their specific subjects, and also get orientation in the role of education in national development.

According to principals' view this can be done by :

—introducing short duration post-diploma or certificate courses relevant to needs of the region, to make students fit for self employment.

—organising orientation courses under faculty improvement programme for teachers; and

—arranging larger number of workshops/orientation courses for faculty members so that they are exposed to the most advanced knowledge in their field.

Research

Generally the institutions do not provide any research facilities and the teachers do not get an opportunity to attend the orientation courses. Most of them are not aware of the modern methods of teaching learning and are reluctant to work beyond office hours.

But some college principals expressed that, if the existing staff is engaged in research work, either in doing their Ph.D. or M. Phil on a part time basis, they experience practical difficulties. They are not able to do full justice to their teaching work and to their research activities. Quite frequently they are forced to take leave, which affects academic work. Research should not be at the cost of teaching/learning programmes of the institute. Teachers doing their M. Phil/Ph.D. should be given fellowship or study leave facilities; and substitutes appointed in their place.

Some college principals feel that research facilities in the colleges are negligible. Because funds for a recognised centre for research are not available they do not get sufficient grant for purchasing instruments glassware, chemicals, etc. either from the govt. or from management.

Due to lack of incentives, inclination towards higher studies especially in research is declining day by day. Minor projects are available from UGC for which teachers can get Rs. 10,000 but very few teachers avail of them.

Conduct of Examination

Examination is an integral and essential part of education. The quality aspect even at present depends largely upon the system of examination. Management of examination therefore is very important. The examination system is facing multi-dimensional problems. All sorts of malpractices are being resorted to. The examinations are not being held in time. The evaluation has become very subjective. It is very unfortunate that in some parts of country examinations are not held properly. The whole concept of education is spoiled. When the learners are not evaluated properly we should suggest some ways and means at this level, so that examination could be conducted fairly. Checking unfair means in examinations leads to students getting lower marks as compared to those institutions where they are not so particular, and as a result students resent this and feel bad.

In order to avoid the undesirable developments in the system, the UGC, the central and the state Govts. and even the teachers' organisations have given serious thought to it. Some new strategies have been evolved by the UGC. It has suggested that the quality of assessment should be improved. The examination papers must cover the complete syllabus. The system of internal assessment should be evolved.

Finance

Most of the problems of colleges arise due to lack of adequate financial resources needed for their day to day functioning and future development. Adequacy of grant is divided into two parts :

1. Non-recurring and Development Grant
2. Recurring Grant

Non-recurring grant is generally not sufficient to meet the needs of the college development activities.

Following are some of the specific problems that emerged from the case studies :

1. Maintenance grants or block grants are paid by the state government but in some states, these are paid at the end of the year and in the meanwhile institutions have to bear such expenditure themselves. No uniform pattern is adopted by state government for assessing and disbursing the grants.
2. If a college does not have its own building, then they face many problems. Construction of college teaching block has become a difficult task because the registered societies looking after the college, do not get any financial help from State, Central Govt. or from UGC, for this purpose.
3. It is very difficult to raise the funds from private donations and deposits as the philanthropic inclination for giving such donations is diminishing.
4. Colleges are not in a position to increase the fees charged from the students as per the requirement of colleges, because universities have laid down restrictions about charging the fees. The consideration being that increase in fees adversely affects the weaker sections.
5. The UGC should arrange to send its officers to the colleges applying for development grants to make an on-the-spot study of the actual needs of the colleges taking into consideration actual physical surroundings in which they are situated. Otherwise some colleges shall always remain deprived of UGC grants for no fault of their own.
6. Most of the colleges are not able to get development grants from UGC or such other institutions as they cannot fulfil the rigid norms laid down for [such fundings. There is also a ceiling to such grants. Even if some colleges have managed to get such grants, they are not available timely. There is a long procedure to be followed resulting in avoidable delays.
7. The Govt. should give liberal grants to small rural colleges under a separate category. The UGC should also come to their rescue by sanctioning bulk grants, specially to colleges situated in tribal areas, for construction of

buildings, improvement of laboratories, libraries, play-fields and hostels.

To overcome such difficulties if following measures are adopted, the financial strain will be reduced to some extent :

1. Since we are facing the problem of knowledge explosion, college libraries have to be brought up-to-date, each year. Similarly science laboratories have to be equipped with new apparatus. Norms for giving non-recurring grants by UGC are very specific. They give grant to only those colleges which were established before 1972. The colleges which were established after 1972 face, many difficulties regarding finances for library building, books for library, equipment for laboratory, furniture, etc. if basic grant for improving library and laboratory facilities could be made available to these colleges, it would help in improving their standards substantially.

2. Some colleges could not get various UGC grants due to the condition of minimum enrolment of 300 students in a degree college. These norms are fulfilled only by colleges situated in big towns or cities. A college situated in a small town or rural area cannot fulfil the enrolment norms. These should be relaxed in favour of such colleges.

3. According to the needs of the socio-economic situation, if college principals feel encouraged to introduce some new courses, grants should be sanctioned for these new courses and lecturers should be appointed without inordinate delay.

4. An institution should be allowed to start new subject as per rules only when sufficient funds are provided either by UGC or the State Government.

5. Book bank with the help of UGC grants, should be established in each college.

6. An Institute, like a training centre for research should be initiated by the government with financial assistance from the UGC.

7. Due to lack of funds for purchasing instruments, glassware and chemicals research facilities in science disciplines are seriously affected. A small amount under the head of research fund must be allocated for this purpose.

8. Colleges face acute problems in financing sports and games programmes. As the cost of sports goods has gone up extraordinarily, these cannot be purchased with the fees raised from the students only, so grant under this head should be raised.

9. Govt. should give ad hoc and deficit grant to the colleges.

10. The procedure for getting government grants which have been sanctioned and released is very cumbersome and expensive and it must be simplified.

11. As the fees cannot be raised, a ceiling should be imposed on the strength of the growing colleges, so that small colleges can get an increase in the number of students and are able to raise funds. Restrictions should be imposed on the opening of new colleges to restrict nonviable units. New colleges should be opened on educational needs only, in places and disciplines where these are needed.

Mobilization of Additional Resources

One of the important problems faced by the college principals is mobilization of financial resources. The problem is more with the private colleges than with the Govt. colleges. Govt. colleges are able to get their resources from the public exchequer. But the private colleges are left in lurch to find their own resources.

The main sources of additional resources are :

1. Private endowments
2. Donations from public
3. Student fees including special fees
4. Arranging variety shows, etc.

The private endowments are already created and the amount got by way of interest or rent from these endowments is used by the colleges. This amount is not sufficient for the growth of colleges with the expansion of educational system and number of colleges. The importance of endowments is dwindling day by day.

In some of the States donations play an important role. Particularly in Kerala the seats of management quota are offered to those persons who get donation. It ranges from Rs. 1000 to Rs. 1500 per seat depending upon the subject.

In Kerala private colleges, even the appointments are made after receiving a large amount as donation. For teaching posts the amount varies from Rs. 25,000 to 75,000. From administrative posts it varies from Rs. 500-12,500. This has become a main source of resource and it is utilized mainly for the construction of buildings and hostels. But this system is not prevalent in all the States and this type of donation often brings down the standard of education. Teachers who get job after paying a large sum are not as efficient as those who are appointed solely on merit. Even the students are 3rd rate students. There may not be qualitative improvement.

Student fees are collected on the old rates fixed some 25 years ago. Once fees rates are raised there is hue and cry, and agitations leading to the closure of the educational institutions. Special fees though collected, are utilized for the specific purpose. By arranging variety shows some colleges collect some resources.

Other Issues

1. State level Council of Higher Education should work for coordinating UGC schemes and funds. It should be a professional body.
2. There should be horizontal linkage between different colleges regarding subjects having small enrolment. Thereby there will be specialisation of subjects and duplication can be avoided. This is possible in case of colleges located nearby or in the same city.
3. There should be linkage between educational institutions and industrial or economic sections. The structure of course should be social and need oriented; so that funds can be attracted from industrial sector towards education.
4. The governments should give special attention to education as an important function of nation building. If a uniform formula is adopted in the country for giving maintenance or block grants, such grants should be available to colleges timely, and in full. States should adopt a liberal policy in case of educational expenditure and payment of grants.
5. For development grants, the norms, and conditions should be relaxed and liberalised by UGC or such institutions, so that most of the colleges are able to get the benefit of support and financial help. Development grants should be increased in view of increasing cost of construction. Special attention should be given to colleges in backward areas. These grants should also be made available at the proper time.
6. Of course, while adopting any financial measure, importance should be given to the quality of colleges and education. It does not imply provision of funds without any result in view. Therefore efforts should be made to help quality colleges to grow as well as to help weaker colleges to fulfil the educational needs of their community and to sustain their activities.
7. There should be central level body for the development of curriculum, teaching learning procedures etc. A college should be of practical use to the community. It should keep in close contact with society at large and extend its educational services to the society by way of adult education programme and such other programmes which lead the public to realise the need of education for all round progress. Rural public should be encouraged to participate in various national programmes. Some college principals feel that this aim can be fulfilled only if 80% of the students are residential, then they may be able to do co-curricular activities, social service and educate the people living in nearby villages. Students waste time as well as energy, daily commuting from home to college and back. Therefore provision of hostel accommodation is very necessary.
8. Some of the women's colleges face some serious problems. If they want to start programmes like correspondence courses and continuing education, etc. many teachers have to be involved but they are reluctant to take an additional burden. Women teachers' work becomes almost double; at home and in the Institute. No solution for this problem has been thought out.
9. Special concession should be given to women's colleges to extend their facilities regarding the

construction and improvement of facilities in existing hostels.

10. If teachers make some effort and start writing correspondence lessons or participate in other activities like NCC, NSS, NAEP, they are not given due recognition at the time of assessment for promotion to the postgraduate department, hence the really sincere and hardworking teachers are dissatisfied.

11. Financial assistance being given to SC/ST students should be more realistic in view of rise in cost of living.

12. There should be coordination between university, state govt. and UGC regarding policies and procedures. For example :

    —student teacher ratio, norms of teaching hours;

    —appointment of teaching and non-teaching staff; and

    —implementation of the scheme of restructuring of courses and conduct of examination.

13. Counselling and vocational guidance centres may be opened not only in the educational institutions but in big cities and taluka towns.

14. Establishment of women organisations in all parts of the country should be encouraged by the central govt. as well as by the state govt. With these voluntary organisations, programme of eradicating illiteracy can also be very well implemented.

15. Academic services should be given by the universities to the colleges. University laboratories and library should be thrown open to the use of the affiliated colleges. ☐

SHORT CYCLE EDUCATION

(*Continued from page 2*)

Facility to 'Come Back'

In a way, the Central Council of Rural Institutes will promote a new pattern of education, as an improved model of the short cycle education, wherein high quality instruction, sufficient weightage to the degrees and diplomas awarded, and parity of standards to other universities are embedded. A facility for students to 'come back' to the University for improvement of their qualifications and further career prospects after gaining on-the-job experience and after definite intervals, is one of the most significant features of the new pattern. Yet another noteworthy feature is that the curriculum of the course-content would be dovetailed with the development process of the district in which the University is located in order to ensure a simultaneous development of the locality.

Rural Transformation, the Thrust

It is most likely that the new pattern of education would concentrate in areas such as micro planning, agriculture and animal husbandry, rural health and hygiene, rural banking and cooperation, rural engineering and transportation, rural industries and administration, rural credit and economics, rural entrepreneurial development, rural housing, appropriate technology, alternate energy resources and other emerging disciplines in order to ensure a fair mix of demand and supply. Training for self-employment will be another distinct feature of the new pattern.

A Milestone

The speed of progress in Science and Technology, the mobility of the needs of the economy and the resulting instability in employment and the compelling pressures of rural development demand the new pattern of education on Gandhian lines which would provide human resources in consonance with the manpower needs and yet strive to ensure the full development of the faculties of each individual. The Central Council of Rural Institutes will be a milestone in our search for new solutions to banish poverty and unemployment from our land. ☐

THE JUDICIOUS THIRD PARTY

Anand P. Srivastava*

Present Position

The profession of teaching has always been a 'call to service'. It was never an 'invitation to poverty' but it certainly required indifference to the attitude of 'material prosperity'. Now, unfortunately, the reputation is different. Jajaprakash Narayan once defined a professor as one who comes to work at noon and retires before the afternoon. Most of the teaching institutions at various levels have become like large public corporations polluted by slogans on walls, frequent dharnas and strikes and the teacher's traditional image has undergone a complete metamorphosis. While educational scene has globally improved, it has deteriorated in our country after independence and the law of decreasing ability and narrower knowledge is operative in successive generations of teachers. Our teachers being unaware do not practise the basic modern educational philosophy that "education is human endeavour in which the preceding generation attempts to develop the succeeding generation into abler people for better living". After independence the educational institutions have become mighty dens for political parties and their leadership. Teachers are required to be educational leaders. This alone is a full time challenging task. Any deviation to politics is bound to be at the cost of the educational excellence. There should be no doubt about it. Political aptitutes and the absence of real modern educational innovations have made our education a total failure. The school system has deteriorated because college education has failed to give anything except a degree(s) to persons who eventually work as school teachers. Then poorer quality of students start coming to college and very soon less able persons start becoming even college teachers. A vicious circle is thus formed. Politics and unions rule the institutional life and there is no real continuing education of and learning by teachers, who largely spend their total working life with a limited knowledge-capital largely acquired when they passed their own examinations for a degree(s). A microscopic analysis will reveal that largely the union leaders of teachers and karamcharis work for their personal interests and once they achieve those objectives they either leave the union(s) or lose interest. It will also be seen that strings of unions are held by a group of teachers or officers to harass the authorities for personal interests and/or to have a powerful shield or cover for their own corrupt practices. These unions have not at all contributed towards academic innovations and excellence. Instead they have largely hindered them. All over the country no rich 'give and take' academic activities are taking place amongst the teachers and an individual teacher thus compared to developed world stands and lives all his life on a very weak and narrow academic platform. The result is that the quality of learning suffers. The academic life has its own thrills, joys and professional satisfaction. Politicisation through unionisation spoils these scholarly characteristics and contributes to deterioration of learning and human resource in our country. Edward Shils describes Indian scholarship as the paradox of success in failure. Sir Ashby notes that three major commissions have failed to innovate. Altbach states, 'teachers do not regard themselves as independent intellectuals with self imposed responsibilities for teaching and academic life but rather as employees of large bureaucratic structures that they fear! Union activities, politics, strikes, dharnas, etc. in the absence of innovative group endeavours appear at the root of these phenomena. These adverse and subversive trends must be checked and an atmosphere generated for an academic life in our educational institutions.

The Prescription

The Hospitals and other Institutions (Redressal of Grievances of Employees) Bill, 1988 is a welcome effort to eliminate parasites and bacteria ridden strikes, dharnas, lockouts, work to rule, go slow, and gherao by duly providing for separate standing 'Grievance Redressal Authority' and 'Appellate Authority' both for individual and collective grievances. There shall be Management Councils, provision for arbitration through a Board of Arbitrators, and finally where necessary the placing of an award (with Government's orders on public grounds affecting national economy or social justice) before the State Legislature or the two houses of the Parliament for consideration and disposal. Unfortunately, so far, through the absence of these machineries the affairs were practically decided between the two parties on brute lines of settling quarrels on streets or on the lines of the details of the 'state of nature'. The nation has suffered a great deal

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Fellow, Indian Institute of Advanced Study, Shimla : 171 005* so far due to the consequences of these vital gaps of judicious mutual consultation and arbitration. Youngsters in the country have enriched their vocabulary, as compared to their ancestors, by shouting words like **hai hai, **murdabad**, **zindabad**, etc. Establishment of these bodies will be on the lines of establishing local courts, high courts and the Supreme Court exclusively for harmonious employer-employee relationship. It will not be like a hate-relation, rather it will become a rational relation. Instead of telling one's argument to the other party, arguments will be submitted to the judicious third party.

In the process, some faculty members, officers and others (who are currently working as union brokers) will lose their business of promoting self interests indirectly and in a clandestine manner. There shall be checks and balances for employees and employers in addition to penalties like imprisonment and fines, etc. It is only short sightedness, ignorance and one's self interest that will label it to be a Black-Bill. For people who are objective and keen to see that Indian education attains international standards, this Bill will be a great milestone in the growth of scholarship and learning. The teaching profession will be provided with valuable peace and time where mutual group learning processes, 'give and take' sessions of faculty members, personal contacts with students and better services in libraries etc., will be available. Otherwise, it is either a vacation, or a holiday, or a strike, or a dharna, and if none of these, there is incubation atmosphere for these or the after effects of agitations. Finally, the Bill does not provide for scrapping of unions from campuses. It just curbs their roles of direct action type and provides for much needed civilised, sober and conducive steps, by creating a democratic machinery where the final authority rests with the elected representatives of the citizens of India both in State Legislatures and the Parliament at the Centre.

Presently, we find that the sovereignity which is essential for an organised life and fruitful results, in our educational institutions is not in a compact form and located where it should be. It is scattered and major bits are in union offices, largely due to fears of agitations and threats, considering which authorities develop their plans and activities. Vice-Chancellors and Principals succeed in some ways but all have failed in making the faculty to go for academic modernisation and develop better learning processes. The faculty gets together only in opposing the authorities and plans for innovation, like the concept of Autonomous colleges, but not for constructive purposes of modernising teaching-learning processes and general academic curiosity. This Bill is likely to convert these negative tones into positive approaches of assembling for academic betterment, where personal interests will be taken care of by a judiciary-type-arbitration. Restoration of peace is certainly the prerequisite of progress which our educational institutions must endeavour. ☐

INDIAN INSTITUTE OF SCIENCE
BANGALORE- 560 012

Invites

Applications from candidates with a PhD in Biological or Chemical Sciences or MD Degree with aptitude in Bio-medical Research for the award of **Research Associateships**, sponsored by the Department of Bio-technology, in the areas:

(1) Recombinant DNA technology
(2) Immunochemical technology
(3) Protein and Enzyme technology
(4) Microbial technology
(5) Tissue and Cell culture technology
(6) Bio-molecular structure, conformation and interaction.

Candidates who have submitted thesis for the PhD can also apply, but they should have completed all the formalities for the award of the Degree.

Associateship: Ranging from Rs. 1400/- to Rs. 2000/- P.M. (consolidated), subject to enhancement as and when notified by the Government of India.

The programme consists of two components: (a) Training in one or more of the above areas depending upon the background of the candidate; and (b) Research in a chosen area. The duration of the programme scheduled to start by **August 1st, 1988** is for two years, to be suitably formulated for each candidate by an Advisory Committee.

Candidates will have to appear for an interview in the **latter part of July, 1988**.

Candidates should send applications on plain paper to Prof. G. Ramananda Rao Department of Microbiology and Cell Biology of the Institute **on or before June 6th, 1988** giving atleast three areas of their choice in the list, in order of preference alongwith their biodata and two reference letters.

The candidates have to give an undertaking that they will not leave the programme in the middle.

R(IA) 195-1/88 **REGISTRAR**

Convocation

The Challenge

"Scientific agriculture has transformed Indian agriculture from subsistence type to commercial farming, But the ever-increasing population, depleting land fertility and shrinking renewable energy sources continue to pose serious problems. Therefore, the priorities and thrust areas would be on improving the productivity of crops, animals and fisheries and ensuring stability in production", observed Dr. N.S. Randhawa, Director General, Indian Council of Agricultural Research and Secretary, Department of Agricultural Research and Education, Government of India while delivering the Convocation Address at the Narendra Deva University of Agriculture and Technology, Faizabad. He said, "This is a great challenge which the agricultural scientists should always keep in view. Excepts.

Natural Calamities

Agriculture is the backbone of the Indian economy. It has been receiving priority attention of the government since independence of the country. Inspite of best efforts of the policy makers, agricultural scientists and farmers, we have not been able to insulate our agriculture against the vagaries of weather. Floods and droghts continue to bring devastation and untold misery in several regions of the country.

These natural calamities are the main stumbling blocks in achieving stability in our agricultural production. In 1987 several north western parts of the country experienced an unprecedented drought whereas floods affected adversely the agriculture and life of human beings in the eastern part of the country. Thirty four million hectares of Uttar Pradesh, Bihar, West Bengal and Assam had faced serious floods endangering human life, cattle and crop wealths. A large area within the jurisdiction of your University also experiences both the types of natural calamities almost regularly. I would, therefore, appeal to the scientific community to make concerted effort on the management of these disasters.

India is a vast country with variations of natural endowments such as soil, climate, flora and fauna. This diversity has made Indian agriculture one of the most difficult, yet most promising propositions in the world. Inspite of fluctuations in the climate and recurring natural calamities experienced in the country, the agricultural production has been progressively moving up. From 51 million tonnes in 1950-51, the food production recorded an all time high record of 152 million tonnes in 1983-84. However the production, since then, has been fluctuating due to continuous droughts and floods. The drought of 1987 is the worst of its kind in the last 100 years. Even then, the production is expected to be around 135-140 million tonnes (A decade ago such a calamity would have forced us to seek massive food assistance). Thanks to the buffer stock built over the years that has provided a food security to our affected populations. This growth trend in food production has been achieved through application of science and technology. Scientific agriculture has transformed Indian agriculture from subsistence type to commercial farming. But the ever-increasing population, depleting land fertility and shrinking renewable energy sources continue to pose serious problems. Therefore, the priorities and thrust areas would be on improving the productivity of crops, animals and fisheries and ensuring stability in production. This is a great challenge which the agricultural scientists should always keep in view. Thus, the immediate need is to channelise all the resources and efforts not only to wipe out the deficit of food production due to natural calamities but also to increase it further to achieve the 175 million tonnes target set for the terminal year of this plan period.

The area jurisdiction of this university consisting of fifteen districts of Uttar Pradesh present considerable variations in soil and climate. Floods and droughts are quite common in this region. The rainfall is erratic and ranges from 639 to 1105 mm. Though some parts of this region have soils with fairly good water retention capacity and moderate fertility, majority of the area has soils with poor soil fertility and interspersed with 'usar' lands. The irrigation facility in this part of Uttar Pradesh is not so well developed as in the western part. Some districts like Baharaich, Mirzapur, Pratapgarh, Ballia, Sultanpur have very meagre irrigation covering only about 1.4 lakh hectares in each of these districts. The fertiliser consumption in the eastern part of the Uttar Pradesh is also very poor. These factors are largely responsible for the poor productivity of the region.

Agroclimatic Zones

The area lying under the jurisdiction of the university has been categorised into three agroclimatic zones, viz., Eastern plain zone, North-eastern plain zone and Vindhyan zone. General constraints in increasing the agricultural production in these zones have been identified as flood proneness with periodic droughts, lesser fertiliser and its low efficiency, lack of irrigation facilities, lack of improved implements, poor socio-economic conditions of the farmers, lack of awareness about scientific agriculture among farmers and their adherence to grow traditional varieties of crops. I am aware that this university is striving hard to sort out the problems of the farmers by conducting location—specific researches and transferring the appropriate technologies to the farming community. This is quite a challenging task and it would require continuous support from the State Govt. and ICAR to overcome the above constraints.

You may well be aware that the ICAR has launched a Nationwide "National Agricultural Research Project" to establish/strengthen the regional research stations in each of the 127 identified zones to conduct locationspecific, need based and production-oriented research in agriculture and allied sciences. The emphasis during phase 1 of the project was on foodgrains (cereals and pulses) and oilseeds, especially those grown under rainfed conditions and to the integration of cropping patterns and animal husbandry practices. The phase II of the project, effective from April 1986 for a period of 7 years, includes new areas of research such as irrigated farming, animal drawn farm implements, horticulture and commercial food crops, agro-forestry and animal nutrition. You would be happy to know that the Council has already approved two projects, namely, strengthening of Directorate of Research at the headquarters, of your University and strengthening of the research stations at Ghagraghat with an outlay of Rs. 62.76 lakhs. Other two projects at Kumarganj with substation at Masodha and at Ghazipur are under active consideration of the Council. The University may take maximum advantage of this project by formulating suitable sub-projects for other stations of the agro climatic zones. This would certainly improve the research capabilities of this university which would be able to serve its clientele more effectively. Though the Council would help the university in strengthening these sub-stations, the blessings of the State Government would be required in their functioning on long term basis.

Achievements of the University

I am happy to note that in a short span of its existence, your university has made significant research contributions on rice, vegetable crops, fruit crops and agroforestry. It has reclaimed about 300 hectares of land which was not suitable for raising crops. It is now supporting excellent arable crops and fruit and forest plants. The varieties of paddy namely 'Sarjoo S-2', 'Narendra 1' and 'Narendra 2', evolved by this university, are becoming popular with the farmers. Recognizing the importance of deep water paddy in this area, the Council has decided to strengthen the research on this crop at Ghagraghat under IFAD supported project. Similarly, due to importance of Diaraland in the region, the Council has sanctioned two centres of the Diaraland Improvement project for Rapti and Ganga 'Diara'.

You are all aware that this university is currently operating 57 research projects, out of which 32 are funded by the ICAR. The Council is always interested in the overall development of the State Agricultural Universities. But we have also to ensure that we take full advantage of the central/national institutes located in the region. There are eleven National Research Institutes and three National Research Centres in the State of U.P. are of one of these, the Indian Veterinary Research Institute, Izatnagar has been granted deemed to be university status. Though these Institutes have the national mandate, the location advantage can be taken by the state of U. P. and especially by all the three agricultural universities in the State. I am sure, these Universities would develop effective linkages with these institutes and derive maximum advantage from them. The State Government of U.P. is also requested to provide adequate financial support to the State Agricultural Universities, because universities can only develop and fulfil their objectives if adequate financial support is ensured by the State Government as has happened in Haryana and Punjab.

Quality Seeds

Seed of good quality is the cheapest and pivotal input for increasing production. The discovery and introduction of high yielding varieties and hybrids in sixties marked the beginning of the era of 'Green Revolution' in India. In order to maintain the tempo of gains in production, we need to intensify our efforts on high quality seed generation and multiplication. It is inspiring to learn from the Vice-Chancellor's report that the university has the credit of producing quality seeds of high yielding varieties of crops, especially of paddy for various agro-climatic conditions which have found wide acceptance among the farmers for their high yield potential. I am sure, the scientists of this university will keep on endeavouring to develop promising varieties equipped with high quality characters and tolerance to stress is both biotic and abiotic.

Agro-Forestry

There is a conviction held throughout the human history that the trees and forest canopies sustain life in a healthy and balanced condition on our planet. The forest conservation and agriculture are closely interlinked. It is a pity that the forests which served as original source of food and shelter for the man and his animals, became the worst victim of fire and axe on the pretext of increasing area for agriculture. Due to denudation of forests, the ecological balance has been disturbed. Afforestation on a large scale has to be done to revive this balance.

The ICAR has decided to establish a department of forestry in each of the agricultural universities during VII plan. I am happy that such a department has been established in this university also. I appreciate that your university has developed a cheap, feasible and accepted technology for utilisation of user and wasteland through plantations of fruit, fuel and forage trees. This technology must reach the entire region in your jurisdiction as early as possible.

Farm Women Training

The contribution of women in developing and building up our society has been applauded since time immemorial. However, desired attention towards thier welfare seems to be lacking. It is estimated that women are involved in more than 60% of the agricultural operations right from sowing to post-harvest operations. After the day long drudgery, they are also required to undertake kitchen responsibilities and provide nutritional diet from the resources available in the house. As such, training of farm women is absolutely essential. The establishment of department of Home Science in this University with the help of the ICAR is a right step to help the rural women. I am told that the university has started formal training leading to B.Sc. (Home Science) programme. Apart from this academic advancement, the university should also arrange short-term skill training for rural women. This will help the women to equip much better to perform their duties in their day to day life.

Fisheries

Eastern Uttar Pradesh where a vast reservoir of water bodies exist in the form of ponds and lakes, the farmers can make fortune by rearing fish which are a rich source of animal protein. Thus, apart from improving their financial position, fish production will also make their diet rich and nutritive. It is now well established that with the help of composite fish culture technology, more than ten thousand kg. of fish can be harvested from one hectare of pond every year. I am glad that your University has started a department of fisheries and courses on fisheries sciences are offered as electives to the students of Agriculture and Home Science. The ICAR would like to strengthen this programme.

Agricultural Education

The unique feature of the agricultural university system is the complete integration of teaching, research and extension education. The concept of this system envisages education of all disciplines at monocampus with complementarity between different faculties as constituents units. I am happy that this university has been established completely on the land grant pattern and formal instructions are restricted to one campus only.

National education policy adopted by Government of India has aimed at National integration and adherence of certain national values and concerns through introduction of a national core curriculum; an insistence on observance of secular, scientific and moral values; inculcation of an understanding of our composite culture within rich diversity; creation of an awareness of the importance of protection of environment and stress on commitment of the youth to manual work and social service. Reorganisation of the course contents and process of education in state agricultural universities on the above lines should, therefore, be a matter of foremost priority.

Excellence of institutions of higher education is a function of many aspects; self evaluation and self improvement are important among them. The universities should set up such mechanisms which would encourage self assessment and accreditations. This will help the universities to monitor the programmes closely and the quality of education would improve.

It has been observed that in recent past academic inbreeding has increased in our education system. The National policy visualizes measures to facilitate inter-regional mobility of staff and students. There is a need to develop procedures which would permit the universities to relax the restrictive policies of admission of students and recruitment of staff members. The Universities should advise the students not to take all the three degrees from the same university.

In the State of Uttar Pradesh, besides three agricultural Universities, about thirty three private colleges are imparting Undergraduate and Postgraduate formal teaching with inadequate resources and infrastructures. These are affiliated with general universities and are adding to the number of unemployable graduates. This has adversely affected the academic standards of agricultural graduates. Some of the States have started derecognising the degrees of some of the institutions of Uttar Pradesh. In 1975 when two of the state agricultural universities at Kanpur and Faizabad were in the process of establishment, a high powered committee had recommended that those private agricultural colleges which have better resources and achievements may be brought under the fold of the agricultural universities and others which are below the mark may be converted into vocational training centres. This has not been achieved as yet. It is high time that the State Government and Agricultural Universities of Uttar Pradesh, review the academic programmes of these colleges and reorient them in such a way that some of these colleges could be brought under the aegis of the universities. This will be a right step in the right direction. The Dean's Committee of the ICAR has recommended a set of course curriculum for undergraduate degree programmes in agriculture with four years' duration. This has also been adopted by the Association of Indian Agricultural Universities. But some of the agricultural universities and the private colleges still do not follow the recommendations. This should be followed in order to fall in line with other agricultural universities.

The competitive demands for the limited financial resources are growing with time. It is becoming difficult for the Central and State Governments to support the unplanned academic programmes. If these resources are spread thinly, the objective of the agricultural universities would not be fully achieved. The proliferation in agricultural education system has to be discouraged. I have been observing that in some states there is a tendency to start too many academic programmes in the universities without adequate preparations and resources. The professional degrees have to be linked with job opportunities. It would be absolutely necessary to assess the manpower requirement of a particular discipline before starting the new academic programmes. For a properly planned growth of the universities, a long term perspective plan would be absolutely necessary.

The Council had been suggesting to establish a statutory coordination committee in the states where more than one agricultural universities exist. Though it was initiated in U.P., but it needs to be more effective. I would urge the State Governments and the State Agricultural Universities to establish such a committee which will work as a liaison between the State Agricultural Universities in the state, between the State Agricultural Universities and the State Government and Indian Council of Agricultural Research. This committee would help in the utilisation of resources in a meaningful manner and avoid duplication in teaching and research efforts in the State agricultural universities.

Transfer of Technology

We are proud of scientific and technological innovations in the field of agriculture. But all these are meaningless if not transferred to the farmers who are their ultimate users. It has been estimated that nearly 60-70% of research findings are not adopted by farmers on account of several constraints. The directorate of extension of this university is doing very useful work in transferring the appropriate technologies to the farmers. Two Krishi Vigyan Kendras at Bahraich and Basti and four operational research projects on watershed, general agriculture and for scheduled castes and tribes have been demonstrating the effective modes of the transfer of technology. I am informed that the University has earmarked a special fund for lab to land programmes to benefit more than 1000 small and marginal farmers and landless agricultural labourers. I am happy to learn that you are helping the landless agricultural labourers by providing technical and financial resources for goatary, poultry and bee-keeping. □

We Congratulate...

(1) Prof. Kuthati Venkata Reddy who has been appointed as Vice-Chancellor of the Sri Krishndevaraya University, Anantapur.

(2) Prof. G.S. Marwaha, former President, AIU & Director, Indian School of Mines, Dhanbad, who has been appointed by the Govt. of India as the Chairman of the Advance Environment Planning Group for WCL's Wardha Valley Coalfield.

(3) Shri M.N. Desai who has taken over as Vice-Chancellor of Gujarat University, Ahmedabad.

Universities & the National Literacy Mission

A one-day Zonal Workshop for making recommendations to revise the Training Manual prepared for functionaries of Adult Education in 1985, was held at the SNDT Women's University, recently. Sponsored by the University Grants Commission and directed by Smt. Kamalini Bhansali, Vice-Chancellor, SNDT Women's University, the workshop was attended by 24 participants, representing 15 universities. Prof. Ramlal Parikh, Vice-Chancellor, Gujarat Vidyapith, Ahmedabad, Smt. Kumud Bansal, Secretary, Technical & Higher Education, Government of Maharashtra Bombay, and Dr. S.C. Bhatia, Director, Department of Continuing and Adult Education, University of Delhi, Delhi acted as Resource Persons.

The objectives of the Workshop were (a) to review the present Training Manual for Adult Education Functionaries; and (b) to make recommendations for revising the Training Manual in the light of the revised guidelines with special reference to Area Development Approach and National Literacy Mission.

In her welcome address, Smt. Bhansali focussed on the need of revising the Training Manual in the light of the new approach to the Adult Education Programme covering area development and the establishment of the National Literacy Mission.

Prof. Ramlalbhai hoped that this workshop would act as a re-inforcement and replenishment to the Adult Education movement. He said that adult education has now become a movement with the widest possible ramifications. The movement has a catalytic role resulting in mass awakening by going to the widest corners. Universities also need to network with other universities on the one hand and planned process of development on the other hand. He wanted that the approach to the entire movement should be non-cliental, unlike, in the social service approach, which is clinical one with a cliental system. The clients of adult education programme are many times unknown, but they all share a common perception for a common endeavour. Although the input and the output would differ from programme to programme they would be within the common perception.

Area Development Approach

Referring to the Area Development Approach Prof Parekh clerified that : (1) Area Approach was a community approach dealing with an area with composite group or groups of people working for social development. It woulds therefore, deal with human resources.

(2) As far as methodology was concerned, he stressed micro-planning through micronising national problems. National plans give us macro-developments but micro-plans would enrich the macro scenes. The focus here should be planning around learning need of people through multi-dimensional learning programmes with enormous diversity giving opportunity for local initiative. He emphasised the partnership concept through learning needs. The methodology thus should be micro-planning for micro-communities through partnership roles.

(3) The major instrument of human resources is the resource map of the community showing the physical, natural and human resources. This would have to be chalked out for effective planning and implementation.

(4) The method of clusterisation was more suitable in the area approach, e.g. a group houses or a group of families.

(5) Harmonising clusters was the only way of eradicating communalisation of society. What we needed was 'communitisation' and not 'communalisation'.

(6) The operational aspect should be through a community committee comprising representatives of the local community giving adequate representation to women, in the development of programmes. For this purpose it was necessary to prepare community profiles to determine the types of meaningful programmes for the area.

(7) Universities should co-ordinate with sub-structures in a triangular form comprising grass-root level educational activites at the Adult Education Centres, the Jana Shikshan Nilayam and the Non-formal Education Centres.

He felt that the community approach would bring the programme closest to the life of the people. A block could be of 100-150 villages of average size of 50-75 villages of a bigger size. The students could be involved in identifying the learning needs of the community and preparing community profiles through preparation of records of families and the MPFL can act as a powerful instrument for collecting the data as well as spreading the message.

National Literacy Mission

Smt. Kumud Bansal highlighted the various facets of National Literacy Mission (NLM) asunder :

—NLM is one of the five crucial areas for national development to be tackled with a missionary approach together with other missions; namely—drinking water, immunization, literacy, oilseeds and telecommunications.

—It would involve people's participation through programmes like Padyatra, Gnanagatha, identification of youth who can be activists for education, organisation of local people for the purpose.

—Creating awareness by involving all categories and sections of people.

—Giving visibility to the message through hoardings, public media and so on.

—**Communication :** University Departments would have an important role to play in this. She illustrated this aspect by referring to the efforts of the IUACE in disseminating information about new programmes, new trends, through the Newsletter, which acted as a very powerful instrument of communication for the University network.

—**Training :** Training of Instructors is the weakest link although he is the crucial key worker and this problem requires to be tackled on priority basis.

—**Techno-pedagogic inputs :** NLM envisages techno-pedagogic demonstration first in 40 selected districts in the country. This would include installation of solar power packs and improved petromax/lanterns in the 40 districts in the adult education centres for better lighting and using electronic media like T.V. etc.; improvement in the learning material; improving the pace and quality of learning; use of electronic media for training; and use of computer in the management of NLM by preparing data base information through checking progress of learners maintaining records of learners and periodical evaluation.

The evaluation will start with 40 districts and after checking the results, the application will be extended.

—Provision of Continuing Education through Jana Shikshan Nilayams by providing one JSN for about 8 Adult Education Centres in either rural areas or urban slums;

—Restructuring of courses to enable students to be exposed to the theory and practice of Adult Education;

—Different models should be worked out all over the country; and

—Creation of a positive approach to extension which has been accepted as the third dimension.

Dr. S.C. Bhatia emphasised that a revolutionary concept for social development was introduced by accepting extension as the third dimension within the University system. This had a great impact on involvement of students in this work. The University system has worked as an innovator of ideas in this field by adding new facets under Adult and Continaing Education and Extension work, like Population Education, Science for the People, Legal Literacy and so on. He strongly advocated that the NLM should accept the different roles of university system in the process. To illustrate—training, research, awareness, co-ordination and so on should be the definite functions which must be assigned to the universities through the University Grants Commission (UGC).

He suggested that the Area Development Approach should be multidimensional and the university system, besides the regular UGC programmes, should build a bigger campaign within itself by taking advantage of other developmental programmes and schemes to the maximum thus linking up adult education programmes with developmental activities. He added that the roles of universities in NLM needed to be defined asunder :

(1) Utilizing media and communication for environment building, preparation of training packages, and preparation of learning materials;

(2) Staff Development training for adult education personnel, instructors, students, supervisors and others, preparation of training manuals, review and evaluation of training programmes, and use of electronic media for training purposes;

(3) Model Building in Adult Education Programme Management at village level, district level, and setting up AECs and JSNs;

(4) Technological Demonstration of computer aided literacy package for self-learning, linking technology transfer with adult education, and through technical support;

(5) Research and Development Efforts to achieve rapid literacy, and literacy in the Indian socio-cultural scene; and

(6) Social audit of efforts under NLM in respect of learning process, management models and programme monitoring, and evaluation, and learner achievement.

Recommendations

The following recommendations emerged at the conclusion of the workshop :

A. Area Development Approach and NLM

1. Role of universities in the functioning of the NLM should be clearly defined as they can make definite contribution in this work.
2. Short term and long term Literacy roles should be defined describing involvement of universities in the NLM.
3. There should be three main sub-agencies for implementing the NLM Programmes, namely, State Government, Voluntary Agencies, and Universities and Colleges.
4. The UGC should be entrusted with the responsibility of at least 5000 JSNs since the coverage indicated for universities and colleges in the NLM document is 250 centres in 1988-89 and 30,000 centres in 1989-90.

B. Training Manual

(i) Guidelines should include, training content, strategy and methodology of area approach.

(ii) Training strategies of functionaries in the light of revised guidelines should cover following categories at different levels :

(A) Training and orientation of functionaries at the levels of: (i) Instructor, (ii) Supervisor, (iii) Project Officer, (iv) University Department Staff,

(B) In-Service Training

(C) Staff Development (Fresh)

(iii) The Manual should be called the Staff Development Manual in Extension.

(iv) UGC should constitute a group to undertake the revision of the earlier Training Manual.

Alagappa Varsity Plans New Courses

The Alagappa Unixersity, Karaikudi, plans to introduce M.Com. (Entrepreneurship), M.A. (Adult Education), M.Sc. (Instrumentation and Electronics) and M Sc. (Applied Mathematics) from the academic year 1988-89. The university has also decided to introduce M.B.A. with emphasis on Small Business Management from the academic year 1988-89.

The university proposes to set up a 'School of Management Sciences' integrating the existing Departments of Commerce and Corporate Secretaryship and the new Department of Business Administration. A 'School of Natural Resources' with specialisation in Applied Geology, Water Resource Management and Oceanography is also planned. A 'Department of Fine Arts and Culture' would be set up from 1988-89 which would offer postgraduate courses in Performing Arts like Fine Arts, Music, and Sculpture.

The university has a long term plan of establishing a 'School of Bio-Technology' in which specialisations in Bio-Physics, Molecular Biology, Micro-Biology and Immunology are aimed at. All the above new departments would offer M.Phil. and Ph.D. programmes also.

Bihar Shree Awards

Four students of Patna University are to be honoured as 'Bihar Shree' in recognition of their services in the promotion of Indian art and culture. The students are Santosh Nahar (Violin), Raj Kumar Nahar (Tabla), Madhukar Anand (Classical Dance) and Shambhavi (Fine Arts). All the four students have participated in the Inter-University Youth Festivals and other cultural activities organized by AIU and won laurels for their university. The Nahar brothers also participated in Festival of India in the USSR in September 1987.

'Bihar Shree' has been instituted by the Govt. of Bihar and the Times of India Group of publications. The award includes a 'Shawl' and 'Tamra Patra'.

IGNOU to Offer New Courses

The Indira Gandhi National Open University proposes to introduce special programmes of continuing education for defence services and women in pre-school education, nutrition and dietetics, child psychology and counselling. This was stated by the Human Resource Development Minister Shri P.V. Narasimha Rao, while presiding over the consultative committee meeting held in New Delhi recently.

According to the Minister, the priority is being given to the target groups belonging to less-privileged and under privileged sections of the society, including women, particularly in the rural and slum areas, scheduled castes and tribes, dropouts, unemployed youth, handicapped persons, workers in unorganised sectors, teachers of primary and secondary schools and university students from the underprivileged rural groups for imparting continuing education to overcome their deficiency, both in knowledge and skill.

Yoga University

A residential Yoga University is proposed to be set up soon in Bihar. Dr. Phulgenda Sinha, Director, Indian Institute of Yoga who is also the Secretary of the Yoga University Foundation Committee, said that a site is being selected and the proposed university is expected to start functioning by the end of 1989.

The university would admit students from all over the world on quota reservation basis. It would confer degree in Yoga, namely, Bachelor of Yoga, Master of Yoga and Ph.D. in Yoga. The university would train students in Yoga-Therapy.

Some unique features of the proposed University would be that every student admitted would have to do physical labour for two hours a day. The university would open one industrial unit for producing consumer goods, where the students would work and earn. The University will produce most of its food from its own land with the help of its students. There would be Yoga hospital of one hundred beds where patients of various chronic diseases would be treated through Yoga therapy. All clinical examinations and services would be provided by the hospital.

Planetarium Course

The B.M. Birla Planetarium Hyderabad, proposes to introduce a postgraduate diploma course in planetarium techniques and management. According to Mr B.G. Siddharath, Director, the two-semester course was aimed at training personnel for the various planetaria coming up in the country.

Latin American Studies Programme

The University Grants Commission (UGC) is reported to have approved Goa University's programme for Latin American Studies and earmarked Rs. 4.60 lakhs for it. This was disclosed by Shri L.P. Sahi, Union Minister of State for Education in Lok Sabha recently.

News from Agril. Varsities

National Workshop on Sunflower Cultivation

Dr Sukhdev Singh, Vice-Chancellor of the Punjab Agricultural University, who presided over the concluding function of a 13-day National Workshop on Sunflower Cultivation, said that the production of oilseeds should be geared up to save foreign exchange to the tune of Rs 1000 crores being spent annually to import edible oils from abroad. Sunflower was a new crop for this country and when a new crop was introduced, its seeds may bring some disease, insect-pest or weeds with them which might pose problems at the later stage. The success of a new crop depended on its proper marketing otherwise the farmers would be disheartened and give up its cultivation. He urged the extension workers to immediately contact the PAU when they notice attack of any disease, insect-pest on the crop. He also suggested that sunflower should b grown in big blocks instead of small patches as this crop is badly damaged by the birds.

Dr A.S. Dhaliwal, Professor and Head of the Department of Extension Education said that sunflower crop was introduced in India as an edible oilseed crop. The advantages of polyunsaturated fats in human diet had enhanced the use of sunflower oil in edible and processed food. He observed that the oil content in sunflower seed was as high as 65 per cent with an average of 42 to 45 per cent and protein content of 15 to 20 per cent.

Thirty-four participants from Punjab, Haryana, Himachal Pradesh, Gujarat and Andhra Pradesh attended the Workshop which was sponsored by the Union Ministry of Agriculture and Co-operation.

'Kiran'—New Linseed Variety

A new linseed variety 'Kiran' has been developed recently by Indira Gandhi Krishi Vishwavidyalaya, Raipur under oilseed development programme. This variety matures early and is multi-resistant for rust, wilt and powdery-mildew and highly tolerent against linseed bud-fly and thrips attack. It gives 45 per cent higher seed yields with maximum potential of 1118 kg/ha under rainfed cultivation as compared with cultivator's local seed. This variety was tested for last three years under all India coordinated testing programme at 37 locations as RLC-6 and was identified for pre-release multiplication last year at Pantnagar during rabi oilseed workshop. Besides Madhya Pradesh, this variety has proved outstanding in yield at Maharashtra, Rajasthan, Orissa and Karnataka against local Zonal and National checks. This variety is also suitable for late sowing up to 2nd week of November, and performs well under irrigated and Utera cultivation.

'Parbhani Kranti'

Marathwada Agricultural University has evolved 'Parbhani Kranti' a yellow vein mosaic resistant variety of Bhendi by crossing Pusa Savani Manihot, a yellow vein mosaic resistant Japanese wild Bhendi. 'Parbhani Kranti' gives 84 and 115 quintals of green fruit yield per hectare in summer and kharif season respectively (8 to 10 quintals per hectare higher green fruit yield than Pusa Savani). This variety is having succulent, green, long fruits tapering towards end and is recommended by the Central Govt. for cultivation throughout the country.

News from UGC

INSAT-1B Programme of UGC

Between 1st June to 15th June, 1988 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is of one hour duration every day from 12.45 p.m. to 1.45 p.m. (Repeated from 4 p.m. to 5 p.m.) and will be available on the TV Network throughout the country. For the viewers in Delhi and surrounding areas these programmes can be seen on the second channel.

1.6.88

"Thermal Power Plant--III"
"Legacies of the Ice Age"
"Differential Gene Expression"

2.6.88

"Introduction to Computers—V Basic—II"
"Lavas of Etna"
"Fish By Catch"

3 6.88

"Iteration & Convergence"
"Portrayal of a People"
"A Walk Through the Ridge"

4.6.88

"Appreciation of Indian Dance—IV"
"Art Appreciation—V"

5.6.88

No Telecast

6.6.88

"Optics—VI : Refraction—I"
"Peoples Participation in Rural Development"
"Queen of Spices—Cardamom"

7.6.88

"The Story of Copper"
"Teleteach—I"
"Management of Kidney Failure—I"

8.6.88

"A Sample Experiment—Friction Laws"
"Tools : Stone Age"
"Patterns in Development"

9.6.88

"Introduction to COBOL—I"
"Heat Through the Lithosphere'
"From the Oceans Depths"

10.6.'88

"The Reciprocal Function"
"Visual Anthropology"
"Coastal Protection"

Communication

Dear Sir,

There is a necessity of introducing employment oriented courses in the Degree level, to create self confidence among the degree class students.

Under 'Restructuring of courses' the UGC recommends electronics as a core subject alongwith Mathematics and Physics. But the department of electronics, Govt. of India, in order to prevent proliferation in the course of study, has discouraged the universities in granting affiliation for such courses.

I feel that such courses of study on employment oriented subjects be framed by the A.I.U. and circulated to the Universities/Colleges for implementation.

Awaiting your opinion.

Yours sincerely,
D. Panigrahy
Principal, Science College
Hinjilicut (Ganjam) Orissa

11.6.88

"Art Appreciation—VI"
"History of Clothing—I Fur and Leather"

12.6.88

No Telecast

13.6.88

"Optics—VII : Refraction—II"
"What is GATT"
"Raw Materials—Tobacco"

14.6.88

"Offshore Structural Engineering"
"Teleteach—II"
"Management of Kidney Failure—II"

15.6.88

"Engineering Experimentation Course"
"Kiradu—An Oasis in the Desert"
"Patterns in Development—Cell Movement"

News from Abroad

Business/Higher Education Cooperation

Business Council of Australia, the Australian Vice-Chancellors' Committee and the Australian Committee of Directors and Principals in Advanced Education have set up a Council for Business/Higher Education Cooperation to review existing links, particularly in applied research and technology, and investigate how effectively each sector uses the expertise available in the other. The Council is made up of Vice-Chancellors and Directors of universities and colleges and senior excutives of Australian companies. Among the issues which are to be examined by the Council are :

—The need for business and industry to make full use of the research carried out in Australian institutions;

—The need to develop a culture in Australia which will encourage co-operation between the sectors;

—The development of a register of qualified business people able to serve on councils and committees of the institutions;

—Support for the National Teaching Company Scheme as a mechanism for developing co-operation between the sectors. The scheme involves graduates employed by companies on specific projects; and

—The need to encourage more interaction between the institutions and industry through the use of the 150% R & D tax incentives scheme in universities and colleges.

University of East-West Unity

Foreign students need no longer feel lost upon arrival in the high tech. US Society because of the cultural shock. The University of East-West Unity in Monroe, New York now offers a two to six week orientation programme specially designed for Indian students and teachers in United States. The programme includes teaching of scientific systems and cultural enrichment which integrates western materialism and eastern spirituality and culture, programme in yoga, meditation, comparative religions and spiritual psychology. The programme also has a component of Seva which provides an opportunity to participants to interact with the residents, staff and other guests in a way that helps them adjust to western culture. The university also maintains an Ashram which is open to students at any time for a retreat. Further details can be had from the University of East-West Unity. Shri Ramamurti International Center, Anand Ashram, R.D. 3 Box 141, Monroe, New York 10950.

INDIAN INSTITUTE OF SCIENCE
BANGALORE-560 012
Requires

Senior Scientific Officer in the Department of Physics.

Qualifications and Experience :

Essential : ME/M Teach in Electronics/Electrical Engineering/Computer Science or Engineering/Physical Engineering with Electronic Instrumentation or equivalent Degree with good background in Electronics including Microprocessors with 5 to 8 years experience in the field of Electronics Instrumentation.

Desirable : Experience in the design and servicing of Electronic instruments/Micro-computer/Computer systems.

Relaxation : The requirement regarding number of years of experience is relaxable at the discretion of the competent authority.

Emoluments : Rs. 4,090/- p.m. in the pay scale Rs. 3000-4500.

Details and prescribed application forms can be obtained on request from the Registrar, Indian Institute of Science, Bangalore-560012, accompanied by a crossed Postal Order for Rs. 5/- (free of cost to SC/ST on production of Caste Certificate from a competent authority) drawn in favour of him alongwith a self-addressed Rs. 5.40 stamped envelope of the size 21 x 18 cms. **on or before 3rd June, 1988.**

R(IA)308-19/88 **REGISTRAR**

Association of Indian Universities

SPORTS CALENDAR

1988-89

GAMES ON ALL INDIA BASIS

S. No.	Game	Organising University	August	September	October	November	December	January
1.	Athletics (M&W)	Calicut	—	—	—	12th (CE)	27th (C)	—
2.	Ball Badminton (M)	Madras	—	—	—	15th (CE)	—	6th (C)
3.	Ball Badminton (W)	Madras	—	—	—	—	3rd (CE)	17th (C)
4.	Boxing	Rani Durgawati	—	—	—	—	2nd (CE)	8th (C)
5.	Cricket (W)	Calcutta	—	—	9th (CE)	24th (CE)	—	—
6.	Cross Country Races (M&W)	Mangalore	—	25th (CE)	18th (C)	—	—	—
7.	Cycling (M&W)	Punjabi	—	—	—	—	3rd (CE)	9th (C)
8.	Gymnastics (M&W) & Malkhambh	Kakatiya	—	—	27th (CE)	—	10th (C)	—
9.	Judo	GND	—	—	—	—	10th (CE)	23rd (C)
10.	Rowing (M&W)	Anna	—	—	—	22nd (CE)	—	7th (C)
11.	Squash Rackets	Vacant	—	—	—	—	1st (CE)	15th (C)
12.	Swimming (M&W), Diving & Water Polo	Panjab	25th (CE)	—	10th (C)	—	—	—
13.	Tennis (W)	Mangalore	—	—	—	—	1st (CE)	16th (C)
14.	Wt. Lifting & Best Physique	Sukhadia	—	—	19th (CE)	—	1st (C)	—
15.	Wrestling	Kurukshetra	—	24th (CE)	—	5th (C)	—	—

GAMES ON TWO-ZONE BASIS

S. No.	Game	Organising University	Zone	August	September	October	November	December	January
1.	Basketball (W)	Calcutta	NE	—	16th (CE)	Last week &	1st week (CIZ 3rd)	—	—
		Banasthali	SW & IZ						
2,	Chess	Vacant	NE	—	1st (CE)	—	—	1st fortnight (CIZ 12)	—
		Vacant	SW & IZ						
3.	Handball (M&W)	Panjab	NE & IZ	—	—	—	30th CE)	—	2nd fortnight (CIZ 26)
		Nagpur	SW						
4.	Hockey (W)	Ranchi	NE & IZ	—	26th (CE)	27 to	10th (CIZ 8)	—	—
		Bangalore	SW						
5.	Kabaddi (W)	Punjabi	NE & IZ	—	15th (CE)	—	1st & 2nd weeks (CIZ 12)	—	—
		Poona	SW						
6.	Kho-Kho (M)	CSA Agril. & Tech.	NE	—	—	—	20th (CE)	—	1st & 2nd (CIZ 12)
		Agril. Sciences (Bangalore)	SW & IZ						
7.	Kho-Kho (W)	Punjabi	NE	—	—	—	—	1st (CE)	2nd fortnight (CIZ 28)
		Gulbarga	SW & IZ						
8.	Tennis (M)	IIT, Kanpur	NE	—	—	—	30th (CE)	—	2nd fortnight (CIZ 28)
		Karnatak	SW & IZ						
9.	Volleyball (W)	Garhwal	NE & IZ	—	—	1st (CE)	2nd fortnight (CIZ 27)	—	—
		Shivaji	SW						

GAMES ON FOUR-ZONE BASIS

S. No.	Game	Organising University	Zone	August	September	October	November	December	January
1.	Badminton (M&W)	Lucknow	N	—	1st (CE)	1st fortnight (CIZ 12)	—	—	—
		Jadavpur	E&IZ						
		Mysore	S						
		Devi Ahilya	W						
2.	Basketball (M)	Aligarh	N	—	—	7th (CE)	last week & 1st week (CIZ 1st)		—
		Calcutta	E						
		Calicut	S						
		Bombay	W&IZ						
3.	Cricket (M)	Delhi	N	—	—	—	4th (CE)	From 20th upto 20th (CIZ 12)	
		Utkal	E						
		Osmania	S						
		Rajasthan	W&IZ						
4.	Football (M)	G.B, Pant	N	—	1st (CE)	2nd fortnight &	1st week (CIZ 1st)	—	—
		Patna	E						
		Kerala Agril.	S						
		Goa	W&IZ						
5.	Hockey (M)	Allahabad	N	—	24th (CE)	—	Last three weeks (CIZ 24)	—	—
		Banaras	E						
		Kakatiya	S						
		Dr, H.S. Gour	W&IZ						
6.	Kabaddi (M)	CSA of Agril. & Tech.	N	—	—	1st (CE)	2nd fortnight (CIZ 27)	—	—
		Burdwan	E&IZ						
		Kuvempu	S						
		Bhopal	W						
7.	Table Tennis (M&W)	Jammu	N&IZ	—	—	15th (CE)	—	1st fortnight (CIZ 12)	—
		Magadh	E						
		Madurai	S						
		Amravati	W						
8.	Volleyball (M)	ND Agril. & Tech.	N&IZ	—	7th (CE)	Last week &	1st week (CIZ 5)	—	—
		Guru Ghasidas	E						
		Mahatma Gandhi	S						
		Sardar Patel	W						

Notes :

1. Abbreviations Used :

C—Date of commencement of tournaments run straightway on All India Basis.
CE—Last date of closing the entries.
CIZ—Commencement of Inter-Zonals
IZ—Inter-Zonals
N—North Zone
E—East Zone
S—South Zone
W—West Zone
NE—combined North and East Zone
SW—combined South and West Zone

2. These tournaments shall be played on league basis from the zonal Semi-Final Stage.
3. Inter-Zonals of the tournaments in the games of Basketball (W), Handball (M&W), Hockey (W), Kabaddi (W), Kho-Kho (M&W) and Volleyball (W) run on two-zone basis shall be played on league basis.
4. Inter-Zonals of the tournaments in the games of Basketball (M), Football, Hockey (M), Kabaddi (M) and Volleyball (M) run on Four-Zone basis shall be played on league-cum-knock out basis.
5. Inter-Zonals in respect of cricket (M) shall be played on knock-cum-knock out basis.
6. Inter-University Rowing competition shall be organised on knock-out-cum-league basis. League system shall apply from the semi-final stage.
7. Universities standing in arrears by 15th August on account of annual subscription or any other AIU dues may be debarred from participation in the Inter-University Tournaments.

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month' while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research scholars and students of education are welcome to use these resources. The Library is open from 9-00 a.m. to 5-30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

SOCIAL SCIENCES

Psychology

1. Chanchal Kumari. *Effect father's absence on personality development of school age children.* BHU. Dr. Reeta Verma, Department of Psychology, Banaras Hindu University, Varanasi.

2. Fernandez, Diana Janet. *Stress reactions in college students : An analytical study.* Kerala. Dr. Krishnaprasad Sreedhar. Department of Psychology, University of Kerala, Trivandrum.

3. Kaul, Reena. *Effect of motivational variables on retrivability.* BHU. Dr. C.B. Dwivedi, Department of Psychology, Banaras Hindu University, Varanasi.

4. Mishra, Madhulika. *Self-image, anxiety and depression in youth under professional vs. non-professional courses.* BHU. Dr. Reeta Verma, Department of Psychology, Banaras Hindu University, Varanasi.

5. Nainian, Reza. *Comparative study on the anxiety symptoms on Indian and Iranian patients.* BHU. Dr. R.R. Tripathi. Department of Psychology, Banaras Hindu University, Varanasi.

6. Singh, Kumud. *Information processing in sustained attention.* BHU. Dr. I.L. Singh, Department of Psychology, Banaras Hindu University, Varanasi.

7. Singh, Shyam Kumar. *Psychological deficits in psychiatric patients.* BHU. Dr. M.K. Mandal, Department of Psychology, Banaras Hindu University, Varanasi.

Sociology

1. Gupta, Anupama. *Dakshin Paschim Madhya Pradesh kee Bhil mahilaon kee samajik arthik sthiti ka ek samajshastriya adhyayan.* Devi Ahilya. Dr. (Smt.) S. Pothan, Department of Sociology, Govt. New Girls Degree College, Indore.

2. Helena Judith, P. *Role perception, self role congruence and marital satisfaction in dual role worker couples.* Kerala. Dr. Mariamma Joseph, Prof., Loyola College of Social Sciences, Trivandrum.

3. Khan, Aisha. *Madhya Pradesh mein bal apradhion evam unke punravas ka ek samajshastriya adhyayan.* Devi Ahilya. Dr. (Smt.) S. Pothan, Department of Sociology, Govt. New Girls Degree College, Indore.

4. Philipose, A. *A study of the occupational problems of employed visually handicapped in Kerala.* Kerala. Dr. E.J. Thomas, Principal, Loyala College of Social Sciences, Trivandrum.

5. Sooryamoorthy, R, *The emergence of consumerism in Kerala.* Kerala. Dr. E.J. Thomas, Principal, Loyala College of Social Sciences, Trivandrum.

Political Science

1. Deshpande, P.V. *Centre-state relations in India : A comparative study of the reports with special reference to K. Santhanam Committee, Administrative Reforms Commission and the Sarkaria Commission.* Shivaji. Dr. K.K. Kavlekar, Prof. and Head, Department of Political Science, Shivaji University, Kolhapur.

2. Shrivastava, Arvind. *Bharat Shri Lanka sambandh, 1981 ke uprant.* Devi Ahilya. Dr. B.R. Sadh, Principal (Retd.), Govt. Arts and Commerce College, Indore.

Economics

1. Agarwal, Ghanshyam Das. *Dakshin Paschim kshetra mein krishi mein yantrikaran evam uska utpadan aur rojgar per prabhav.* Devi Ahilya. Dr. V.D. Nagar, Prof. and Head, School of Economics, Devi Ahilya Vishwavidyalaya, Indore.

2. Bhatt, Asha Rani. *Economic development in India.* BHU. Dr. D.K. Mishra, Department of Economics, Banaras Hindu University, Varanasi.

3. Chaurasia, Vindhya Bala. *Madhya Pradesh mein dugdh vikas karyakaram : Sagar Sambhag ke vishesh sandarbh mein.* HS Gour. Dr Subodh Pandey, Department of Economics, Dr Hari Singh Gour Vishwavidyalaya, Sagar.

4. Gautam, Deep Singh. *Impact of irrigation on crop growth, income distribution and employment generation in Tawa Command Area of M.P.* HS Gour. Dr. M.L. Tripathi, Department of Economics, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

5. Jha, Dharnidhar. *Impact of the planned processes on the rural poor in Begusarai District : A study in the level of income and employment.* Bhagalpur. Dr. S.L. Tylsyan, Reader, Department of Commerce, Koshi College, Khagaria.

6. Rajeswari, S. *The direction and impact of agricultural research in India : An economic assessment.* Kerala. Dr. Chiranjib Sen, Fellow, Centre for Development Studies, Ulloor, Trivandrum and Dr. T.N. Krishnan, Fellow, Centre for Development Studies, Ulloor, Trivandrum.

7. Ram Mohan, K.T. *The industrial evolution of Travancore : Capital, Labour and the state-C-1900-49.* Kerala. Dr. G.N. Rao, Associate Fellow, Centre for Development Studies, Ulloor, Trivandrum.

8. Rana, Rekha. *International economics in the context of economic development.* BHU. Prof. G.S. Kushwaha, Department of Economics, Banaras Hindu University, Varanasi.

9. Shrivastava, Lata. *Madhya Pradesh mein soyabean udyog.* HS Gour. Dr. P.C. Jain, Department of Economics, Govt. College, Sagar.

10. Silaval, Uma Kant. *Population and development in Nepal.* BHU. Prof. (Miss) U.K. Mehra, Department of Economics, Banaras Hindu University, Varanasi.

11. Swami, Rudrayya K. *A study of role of voluntary agencies in economic development in Satara, Sangli and Solapur District.* Shivaji. Dr. K.G. Pathan, Bharati Vidyapeeth, Institute of Management, Solapur.

12. Tewari, Asmita. *An economics analysis of urban poverty in Madhya Pradesh : A case study of Sagar City.* HS Gour. Prof. R Mehrotra, Department of Economics, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

13. Tharuman, R. *Trends in priority sector advances : A study with reference to Khagaria District of North Bihar.* Bhagalpur. Dr. S.L. Tulsyan, Reader, Department of Commerce, Koshi College, Khagaria.

14. Tiwari, Sudha. *Grameen vikas karyakaram : Pragati evam sameeksha, Sagar sambhag ke vishesh sandarbh mein.* HS Gour. Prof. R. Mehrotra, Department of Economics, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

15. Wadkar, Shankar Shripati. *Changing pattern and trends in agriculture : A study of Radhanagari Taluka of Kolhapur District.* Shivaji. Dr. R.M. Tungare, Reader, Chh. Shahu Central Institute of Business Education and Research, Kolhapur.

16. Yamani, Behram. *Rural service cooperative society : Economic development.* BHU. Dr. G.D. Misra, Department of Economics, Banaras Hindu University. Varanasi.

Law

1. Arvind Kaur. *The Woman's matrimonial home : A changing perspective under the family laws in India.* Panjab. Dr. (Ms.) Kulwant Gill, Reader, Department of Laws, Panjab University, Chandigarh.

2. Daljit Singh. *Jurisprudence of maintenance : A study under the Indian personal laws and maintenance provisions of the code of criminal procedure.* Panjab. Dr. (Ms.) Kulwant Gill, Reader, Department of Laws, Panjab University, Chandigarh.

3. Dangwal, Rishi Ram. *Public interest litigation and social justice : A study in judicial craftsmanship with special reference to India.* Panjab. Dr. S. Dayal, Department of Laws, Panjab University, Chandigarh.

4. Gopal Krishna. *International control of air pollution : An appraisal of contemporary international law and institutions.* Panjab. Prof. Bal Krishna, Department of Laws, Panjab University, Chandigarh.

5. Mishra, Ravindra Nath. *Democratic conscience in Indian Constitution and judicial trends.* HS Gour. Dr. H.N. Giri. Department of Law, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

6. Parsoon, Bharat Bhushan. *Subordinate judiciary in India : A constitutional functional study with special reference to the State of Haryana.* Panjab. Prof. B.K. Gupta, Chairman Head, Department of Laws, Panjab University, Chandigarh.

7. Singh, Jag Deo. *Offences against public peace and tranguality in India.* HS Gour. Dr. H.N. Giri, Department of Law, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

8. Singh, Prithvi Pal. *Sexual offences : A sociological study in India.* HS Gour. Dr. H.N. Giri, Department of Laws, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

Public Administration

1. Chauhan, Sewa Singh. *Administration of labour welfare in India with special reference to HP.* HP. Dr. R.D. Sharma, Department of Public Administration, Himachal Pradesh University, Shimla.

2. Gill, Pritpal Singh. *Himachal Pradesh administrative service : An environmental perspective.* HP. Dr. R.D. Sharma, Department of Public Administration, Himachal Pradesh University, Shimla.

3. Parmar, Mahinder Singh. *Problems of police administration in Himachal Pradesh : A case study of three Districts—Bilaspur, Chamba and Shimla.* HP. Dr. R.D. Sharma, Department of Public Administration, Himachal Pradesh University, Shimla.

4. Sebastian, Mary. *Planning in under developed state, H.P. : A study in the organizational structure, plan formulation process and problems of implementation in context to development administration.* HP. Dr. R.D. Sharma, Department

of Public Administration, Himachal Pradesh University, Shimla.

5. Thakur, Anil Kumar. *Growth problems of metropolitan cities of India with special reference to Delhi.* HP. Dr. R.D. Sharma, Department of Public Administration, Himachal Pradesh University, Shimla.

Education

1. Baker, Sophia John. *A study of effectiveness of traditional experience based approach and composite approach to value education in inculcating a set of values in pupils.* Shivaji. Dr. A.N. Joshi, Department of Education, Shivaji University, Kolhapur.

2. Jain, Rashmi. *A critical study of the organization and operation of in service education programmes for teachers of science and other school subjects.* HS Gour. Dr. Ashok K. Kalia, Department of Education, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

3. Malaiya, Sulochna. *A study of the development and problems or pre-school education in the State of Madhya Pradesh, 1956-1988.* HS Gour. Dr. S.P. Ahluwalia, Department of Education, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

4. Wagh, Suhas K. *Development of a multimedia instructional system for remedial measures in fractional numbers.* Shivaji. Dr. R B. Dewasthalee, Department of Education, Shivaji University, Kolhapur.

Commerce

1. Agarwal, Subhash Kumar. *Progress and prospects of rural industrialisation in Madhya Pradesh.* HS Gour. Prof. R.K. Bharti, Head, Department of Commerce, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

2. Arora, Vishwa Deep. *Industrial relations in Central Govt. Companies of India : A case study of I.T.I. Ltd., Naini, Allahabad.* BHU. Dr. Shyam Chandra, Department of Commerce, Banaras Hindu University, Varanasi.

3. Bachute, K.V. *A study of socio-economic aspects of workshops for handicapped in Maharashtra.* Shivaji. Dr. S.G. Bhanushali, 50 Mahalaxmi Nagar, Kolhapur.

4. Bansude, V.G. *Export potential of leather industry in India.* Shivaji. Dr. P.V. Kulkarni, Deputy Director, Management Studies, Central Institute of Road Transport Training and Research, Pune.

5. Chaube, Bhagwat Sharan. *Madhya Pradesh mein samanya Beema Vyavasaya : Sagar evam Jabalpur sambhagon ke vishesh sandarbh mein.* HS Gour. Prof. R.K. Bharti, Head, Department of Commerce, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

6. Gyan Chandra. *Implication of fiscal laws in accounts.* BHU. Dr. Vinay Kumar, Department of Commerce, Banaras Hindu University, Varanasi.

7. Jain, Arvind Kumar. *Economics of energy generation : A comparative study of hydro and thermal power in M.P.* HS Gour. Dr. S.B. Awasthi, Department of Commerce, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

8. Jain, Ashok Kumar. *Madhya Pradesh mein Bhartiya Khadya Nigam : Karyon evam uplabdhiyon ka alochanatmak mulyankan.* HS Gour. Dr. J.K. Jain, Department of Commerce, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

9. Jain, Pavan Kumar. *Madhya Pradesh mein shakkar, cement va katipaya sehkari audyogik upkramon ka arthik adhyayan.* HS Gour. Dr. J K. Jain, Department of Commerce, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

10. Jain, Vipin Kumar. *Madhya Pradesh ka pichhre Jilon ka audyogikaran : Pragati evam samasyayen.* HS Gour. Dr. B K. Jain, Department of Commerce, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

11. Jamil Ahmad. *Appraisal of role of handloom industries in economic development of Eastern U.P.* BHU. Dr. A.A. Ansari, Department of Commerce, Banaras Hindu University, Varanasi.

12. Jha, Shambhu Shanker. *A study of the Indian capital market.* BHU. Prof. R.A Singh, Department of Commerce, Banaras Hindu University, Varanasi.

13. Khare, Neel Kamal. *Madhya Pradesh kee audyogik pariyojna : Pragati, samasyayen evam sambhavnayen.* HS Gour. Prof. R.K. Bharti, Head, Department of Commerce, Dr Hari Singh Gour Vishwavidyalaya, Sagar.

14. Limaye, C.N. *Evaluation of the private sector banks.* Shivaji. Dr. P.C. Shejwalkar, Director, D.E. Society's Institute of Management Development and Research, Pune.

15. Misra, Bharat Bhushan. *Human resource management in UPSRTC.* BHU. Dr. J.S. Mathur, Department of Commerce, Banaras Hindu University, Varanasi.

16. Pandey, Brij Bhushan. *Financial performance of state transport undertakings : A case study.* BHU. Dr. J.S. Mathur, Department of Commerce, Banaras Hindu University, Varanasi.

17. Pandit, Chandrakant Babasaheb. *Problems and prospects of ancillaries in engineering industry in Kolhapur District.* Shivaji. Dr. R.M. Tungare, Reader, Chh. Shahu Central Institute of Business Education and Research, Kolhapur.

18. Rai, Ajay Kumar. *Human resource management and industrial sociology.* BHU. Dr. (Prof.) D.P.N. Singh, Department of Commerce, Banaras Hindu University, Varanasi.

19. Sahu, Arun Kumar. *Madhya Pradesh ke kritrim resha vastra udyog ka vishleshnatmak adhyayan.* HS Gour. Prof. H.C. Saini, Department of Commerce, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

20. Saraswati, S.V.S. *Impact of foreign aid on India's economic development.* BHU. Prof. R A Singh, Department of Commerce, Banaras Hindu University, Varanasi.

21. Singh, Ajit Kumar. *Varanasi mandal ke int bhatton ke sandarbh mein asangathit kshetra kee shramik samasyayen.* BHU. Dr. D.S. Mishra, Department of Commerce, Banaras Hindu University, Varanasi.

22. Singh, Ramesh Chandra. *Performance appraisal of UPTCO.* BHU. Dr. S.P. Agrawal, Department of Commerce, Banaras Hindu University, Varanasi.

23. Singh, Rudra Pratap. *Working of Nabard : A critical appraisal.* BHU. Dr. S.P. Srivastava, Department of Commerce, Banaras Hindu University, Varanasi.

24. Singh, Shambhu Sharan. *Problems and prospects of tea gardens in Lower Assam.* BHU. Dr. S.P. Srivastava, Department of Commerce, Banaras Hindu University, Varanasi.

25. Srivastava, Anukram. *Resource mobilization by State Govt. in India : A case study of U.P.* BHU. Dr. V. Kumar, Department of Commerce, Banaras Hindu University, Varanasi.

Home Science

1. Saxena, Mridula. *The energy status of college going girls of Jaipur.* Banasthali. Mrs. Maya Choudhary, Assoc. Prof., College of Home Science, Sukhadia University, Udaipur.

Business Management

1. Dixit, U.K. *Hospital administration.* BHU. Prof. M. Lal, Department of Management Studies, Banaras Hindu University, Varanasi.

2. Gupta, Man Mohan. *Obstacles in the development of small scale industries : A case study of industrial units in Varanasi.* BHU. Dr. M. Lal, Department of Management Studies, Banaras Hindu University, Varanasi.

3. Jain, Rajaneesh. *Leather exports from U.P. : Problems and prospects.* BHU. Dr. A.K. Agrawal, Department of Management Studies, Banaras Hindu University, Varanasi.

4. Nangia, Vinay Kumar. *Merchant banking in India.* BHU. Dr. C. Lal, Department of Management Studies, Banaras Hindu University, Varanasi.

5. Pradeep Kumar. *Evaluation of credit policies and practices of rural banks in India : A case study.* BHU. Dr. R.M. Srivastava, Department of Management Studies, Banaras Hindu University, Varanasi.

6. Rai, Mahendra Kumar. *Inventory management in textile industry, West Bengal : A case study.* BHU. Dr. Nageshwar Rao, Department of Management Studies, Banaras Hindu University, Varanasi.

7. Sushil Prasad. *Evaluation of responsibility centres in commercial banks : A case study.* BHU. Dr. Nageshwar Rao, Department of Management Studies, Banaras Hindu University, Varanasi.

8. Tripathi, Prem Shankar. *Policies and practices of U.P.F.C. regarding financing of small scale units : A case study.* BHU. Dr. R.M. Srivastava, Department of Management Studies, Banaras Hindu University, Varanasi.

9. Tripathi, Vishwa Nath. *Lending policies and practices of nationalised banks in India : A case study.* BHU. Dr. R.M. Srivastava, Department of Management Studies, Banaras Hindu University, Varanasi.

HUMANITIES

Religion

1. Pandey, Om Prakash. *Comparative study of Confuciasim and Buddhism.* BHU. Dr. Kamal Sheel, Department of Foreign Languages, Banaras Hindu University, Varanasi and Dr. L.N. Sharma, Department of Foreign Languages, Banaras Hindu University, Varanasi.

Fine Arts

Drawing & Painting

1. Mishra, Ved Prakash. *Bhartiya kala kee pragati mein pramukh Saific kalakaron ka yogdan.* BHU. Dr. R.N. Mishra, Department of Painting, Banaras Hindu University, Varanasi.

2. Sharma, Srinath. *Analytical comparative study of mural paintings of Eastern U.P. emphasizing on technique.* BHU. Dr. D.R. Banerjee, Department of Painting, Banaras Hindu University, Varanasi.

3. Singh, Santosh Kumar, *Painting tradition of Kashi and painter.* BHU. Dr. R.N. Mishra, Department of Painting, Banaras Hindu University, Varanasi.

Music

1. Pareek, Neelam. *Marwar ke lok sangeet.* Banasthali, Dr. R.D. Verma, Reader, Department of Music, Banasthali Vidyapith, Rajasthan.

Language & Literature

English

1. Chakravarti, Alaka. *Social analysis in the novels of George Eliot.* BHU. Dr. S.K. Sinha, Department of English, Banaras Hindu University, Varanasi,

2. Dixit, Vandana. *The Great Divide : Communalism in Indo-Anglian literature.* BHU. Dr. R.K. Shukla, Department of English, Banaras Hindu University, Varanasi.

3. Goel, Ashok Kumar. *George Orwell : A study of his fatalistic vision.* BHU. Dr. N.K. Lal, Department of English, Banaras Hindu University, Varanasi.

4. Jacob, Priti Alexander. *The image of woman in the novels of Barbara Pym and Murial Spark : A comparative study.* Kerala. Dr. A. Jameela Beegum, Lecturer, Institute of English, University of Kerala, Trivandrum.

5. Jayasree, S. *Shakespeare in Malayalam : A study of the translation and adaptations of his plays into Malayalam and an assessment of his influence on Malayalam dramatic literature.* Kerala. Dr. K. Ayyappa Panicker, Prof. and Head, Institute of English, University of Kerala, Trivandrum.

6. Koshy, A.V. *Samuel Becket poems in English : The Briddled Anguish of non expression.* Kerala. Dr. K. Radha, Reader Institute of English, University of Kerala, Trivandrum.

7. Krishnan, Sarasa. *Ernest Hemingway : Ethical concern.* BHU. Dr. R.K. Asthana, Department of English, Banaras Hindu University, Varanasi.

8. Nair, Vijay. *Corruption and deformity in the plays of Wole Soyinka : Soyinka as dramatist, a survey of his themes.* Kerala. Dr. K. Radha, Reader, Institute of English, University of Kerala, Trivandrum.

9. Reghu, A. *Nassim Ezekiel's poetry : A study of themes of styles.* Kerala. Dr. K. Radha, Reader, Institute of English, University of Kerala, Trivandrum.

10. Sharma, Neeta. *Srinivasa Iyenkar and the making of Indian English Literature.* Kerala. Dr. K. Ayyappa Panicker, Prof. and Head, Institute of English, University of Kerala, Trivandrum.

11. Singh, Om Prakash. *Image of man in the novels of William Golding.* BHU. Dr. M.K. Choudhury, Department of English, Banaras Hindu University, Varanasi.

12. Srivastava, Hemlata. *William Morris : A study of his social thought.* BHU, Dr. M.K. Choudhury, Department of English, Banaras Hindu University, Varanasi.

13. Sushil Kumar. *The art of Muriel Spark.* BHU. Dr. A.K. Tripathy, Department of English, Banaras Hindu University, Varanasi.

14. Tripathi, Shashi Kant. *British poetry in the fifties : A vevival of Augustanism.* BHU. Dr. R.N. Rai, Department of English, Banaras Hindu University, Varanasi.

Sanskrit

1. Batra, Naresh Kumar. *Vartika pariprekshye katyayanasya samikshatmakam adhyayan.* Panjab. Prof. B.L. Bhartiya, Department of Dayanand Chair for Vedic Studies, Panjab University, Chandigarh and Dr. V.P. Upadhyaya, Department of Sanskrit, Panjab Uuiversity, Chandigarh.

2. Das, Bhagvat. *Kabir Ramanandyo : Siddhant sameeksha.* BHU. Dr. Sudhanshu Shekhar Shastry, Department of Vedic Darshan, Banaras Hindu University, Varanasi.

3. Jha, Dev Pushpa. *Sanskrit kavya shasta mein Jai Rath.* BHU. Dr. Reva Prasad Dwivedi, Department of Sanskrit, Banaras Hindu University, Varanasi.

4. Mukhekar, Brahmchari Manik. *Augustek darshananusaram ishwar swarup vimarsh.* BHU. Dr. Sudhanshu Shekhar Shastry, Department of Vedic Darshan, Banaras Hindu University, Varanasi.

5. Sharma, Pinak Rani. *Gopatha Brarmana gata niryachayam anushilanam.* BHU. Prof. B.L. Bhartiya, Department of Dyanand Chair for Vedic Studies, Panjab University, Chandigarh and Dr. V.P. Upadhyaya, Department of Sanskrit, Panjab University, Chandigarh.

6. Shivanand Brahmchari. *Vir Shaiv Dharam Darshan mein Shri Virbhadra Shivacharya Jee ka yogdan.* BHU. Dr. Sudhanshu Shekhar Shastry, Department of Vedic Darshan, Banaras Hindu University, Varanasi.

7. Srivastava, Kiran. *Ayurved ke paripekshya mein Rigveda ke dashama mandal ka anusheelan.* BHU. Dr. L.P. Gupta, Department of Basic Principles, Banaras Hindu University, Varanasi.

Hindi

1. Baljinder Kaur. *Kabir aur Nanak ka samaj darshan : Tatkalin samaj ke sandarbh mein.* BHU. Dr. N.N. Upadhyay, Department of Hindi, Banaras Hindu University, Varanasi.

2. Baranawal, Annapurna. *Sur Sagar aur aaj kee yugeen apekshayen.* BHU. Dr. Ram Naresh Varma, Department of Hindi, Banaras Hindu University, Varanasi.

3. Chaube, Uma Shankar. *Ashtachhap kavya mein charitrachitran : Shrimadbhagavat ke paripekshya mein.* BHU. Dr. N.N. Upadhyay, Department of Hindi, Banaras Hindu University, Varanasi.

4. Ganeshan, Sujata. *Mahadevi ka gadya-sahitya.* BHU. Dr. Asha Pant, Department of Hindi, Banaras Hindu University, Varanasi.

5. Sharma, Arun Kumar. *Sant sahitya mein lok sanskriti.* BHU. Dr. N.N. Upadhyay, Department of Hindi, Banaras Hindu University, Varanasi.

6. Sharma, Surinder Kumar. *Hindi sahityashastra kee alankarabhinatmak shabdavali ka adhyayan : Srotparak tatha arthparak.* Panjab. Dr. Darshan Singh, Govt. College, Hoshiarpur.

7. Singh, Rajendra Prasad. *Vidyapati kee padawali aur maithili sanskriti.* BHU. Dr. Vidyottama Mishra, Department of Hindi, Banaras Hindu University, Varanasi.

8. Srivastava, Priti. *Nirala aur Ekbal kee rashtriya kavitaon ka tulanatmak adhyayan.* BHU. Dr. Vidyottma Mishra, Department of Hindi, Banaras Hindu University, Varanasi.

9. Upadhyaya, Sheela Kumari. *Pragatisheel yatharthvadi kavyadhara aur Trilochan.* BHU. Dr. K.N. Singh, Department of Hindi, Banaras Hindu University, Varanasi.

Urdu

1. Moinuddin Mohammad Khajasab. *Dr. Razzaq Farooqui: Life and literary contributions.* Shivaji. Dr. M.W. Wadman, Sholapur Association's Arts and Commerce College, Muslim Pechha Peth, Solapur.

Marathi

1. Vankudre, Vasant Damodar. *Vangmayeen abhiruchi, vangmayeen chalvali ani samaj yancha paraspar sombandh : Ek abhyas, vishesh sandarbh swatantrayottar kal.* Shivaji. Dr. B.D. Sankpal, Head, Department of Marathi, Rajaram College, Kolhapur.

Kannada

1. Chidanandappa, C. *Chitradurga Jilleya nayakaru : Ondu adhyayana.* BHU. Dr. V. Shivananda, Department of Kannada, Banaras Hindu University, Varanasi.

2. Jithree Suresh. *Alande sastra nadu.* BHU. Prof. V. Shivananda, Department of Kannada, Banaras Hindu University, Varanasi.

Telugu

1. Gokaraju, Bubu Prabhat Chand. *Scientific attitude found in Telugu literature.* BHU. Prof. J. Surya Prakash Rao, Department of Telugu, Banaras Hindu University, Varanasi.

Geography

1. Gaikwad, V.B. *Post independence changes in population character of Western Maharashtra Plateau : A geographical analysis.* Shivaji. Dr. P.W. Deshmukh, Reader, Department of Geography, Shivaji University, Kolhapur.

History

1. Anitha Raj, T. *Social change and changing statue of women.* Kerala. Dr. K. Thulaseedharan Pillai, Head, Department of Sociology, Mahatma Gandhi College, Trivandrum and Dr. T.K. Raveendran, Vice-Chancellor, University of Calicut, Calicut.

2. Bajpai, Swrup. *Bhartiya rashtriya andolan mein Maulana Azad ka yogdan.* Devi Ahilya. Dr. J.C. Upadhyay, Lecturer, Department of History, Govt. Arts and Commerce College, Indore.

3. Dubey, Shelly. *Chhatrapur kshetra kee Brahman Dev pratimayen.* HS Gour. Dr. V.D. Jha, Department of Ancient Indian History, Culture and Archaeology, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

4. Dutta, Kamal Kumar. *Historical origin and development of China town in India.* BHU. Dr. Kamal Sheel, Department of Foreign Language, Banaras Hindu University, Varanasi.

5. Gaur, Sant Singh. *Holkar Rajya ke Angrejon se sambandh san 1886-1948 isvi tak.* Devi Ahilya. Dr. J.C. Upadhyaya, Asstt. Prof., Department of History, Govt. Arts and Commerce College, Indore.

6. Haridikar, Seema. *Dr. Hari Singh Gour Sangrahyalaya se prapt mudrapura vastuon ka sanskritik adhyayan.* HS Gour. Dr. Shyam Kumar Pandey, Department of Ancient Indian History, Culture and Archaeology, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

7. Jain, Vandana. *Seeron Khurd, Jila Lalitpur kee moorti kala ka adhyayan.* HS Gour. Dr. R.N. Aggarwal, Department of Ancient Indian History, Culture and Archaeology, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

8. Padmini, S. *Mahatma Gandhi ka shiksha darshan : Ek alochnatmak adhyayan.* HS Gour. Dr. G.S. Tripathi, Department of History, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

9. Thorat, D.D. *A study of cabinet mission and communal and constitution making problems.* Shivaji. Dr. B.R. Kamble, Head, Department of History, Shivaji University, Kolhapur.

10. Upadhyaya, Anil Kumar. *Bundelkhand kshetra se prapt abhilekhon ka adhyayan : Prarambh se poorva madhya kal tak.* HS Gour. Dr. S.V. Mishra, Head, Department of Ancient Indian History, Culture and Archaeology, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

11. Yadav, Jugal Kishore. *Durg Jile kee prachin mandir vastu.* HS Gour. Dr. S.N. Manvani, Department of Ancient History, Culture and Archaeology, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities.

SOCIAL SCIENCES

Psychology

1. Karkhedkar, Aditi L. *Srudents preception and concern about world of work, as a function of sex, socio-economic status, temperament and ego strength.* Nagpur. Dr. V.S. Patil, Department of Psychology, Nagpur University, Nagpur.

2. Nagar, Veenu. *6 se 12 varsh ke balakon mein samajik arthik star, samajik paripakvata tatha boudhhik vikas ka sahsambandhatmak adhyayan.* Rohilkhand. Dr. Y.K. Gupta, Hindu College, Moradabad.

3. Nangia, Swaran. *A study of socio economic differentials in fertility and family planning as related to some personality variables in Moradabad, District.* Rohilkhand. Dr. P.N. Mehrotra, K.G.K. College, Moradabad.

4. Saxena, Ranjana. *A study of some personality variables in relation to interest.* BHU. Prof. M.S.L. Saxena, Head, Department of Psychology, Banaras Hindu University, Varanasi.

5. Tucker, Veena. *Automaticity in the perception of size.* Delhi.

Sociology

1. Annaporani, M.R. *A study of professional socialization of women medical and nursing students in a medical college.* Madurai.

2. Bahadur Singh. *Gramin nirdhananta : Samajik dashyen Varanasi Janpad ke Shahbganj Vikas Khand ke kuchh gramon per adharit samaj vaigyanik adhyayan.* BHU. Prof. H.C. Srivastava, Reader, Department of Sociology, Banaras Hindu University, Varanasi.

3. Bains, Ravinder Singh. *Responses of non scheduled castes Government employees to the statutory privileges for the scheduled castes in the Panjab : A study in majority-minorities relations.* Panjab.

4. Bali, Romilla. *Job satisfaction among women workers with special reference to educated women workers in Shimla.* Bhopal. Dr. R.M. Solanki, Prof. and Head, Department of Sociology, Hamidia College, Bhopal.

5. Bipin Bihari Lal. *Job satisfaction among industrial workers : A sociological study of industrial workers based on Rohtas Industrial Complex, Bihar.* BHU. Dr. P.N. Pandey.

6. Ghoshal, Arunansu. *Educated scheduled castes in an urban setting : A sociological study in change and social mobility in Bareilly City.* Rohilkhand. Dr. G.C. Kulshreshtha, N.M.S.N. Dass College, Badaun.

7. Gupta, Krishna. *Badaun Janpad ke vaishya parivaron mein shikshit vivahit istriyon ke anukulan ka samajshastriya adhyayan.* Rohilkhand. Dr. G.C. Kulshreshtha, N.M.S.N. Dass College, Badaun.

8. Hari, M. *The effect of modernisation on fertility behaviour.* Venkateswara. Dr. P. Jayarama Reddy, Department of Population Studies, Sri Venkateswara University College, Tirupati.

9. Khazan Singh. *Rural elites and multi village panchayat in Haryana : The case of Chaubisi in District Rohtak.* Panjab.

10. Parveen Fatima. *Awadh ke nawabon kee sanskriti : Lucknow per adharit ek samajik itihasik adhyayan.* BHU. Prof. H.C. Srivastava, Reader, Department of Sociology, Banaras Hindu University, Varanasi.

11. Sharma, Rajendra Kumar. *Journalism as a profession : A study in sociological perspective.* Panjab.

12. Tiwari, Din Bandhu. *Gramin netrittva ka sama vaigyanik adhyayan : Ballia Jile ke Vikas Khando per adharit* BHU. Dr. J.K. Tiwari.

Social Work

1. Mahadevan, Udaya. *A study on the families of traffic accident victims.* Bangalore. Dr. I.A. Shariff, Prof. and Head, Department of Psychiatric Social Work, National Institute of Mental Health and Neuro Sciences, Bangalore.

Political Science

1. Anand, Uma. *Role of the CPI as an opposition party in the Fifth Lok Sabha.* Delhi.

2. Babu Ram. *Kendra-rajyon ke sambandhon mein Pradhanmantri kee bhumika, 1967-1984.* Rohilkhand. Dr. N.S. Gahlot, N.M.S.N. Dass College, Badaun.

3. Kulkarni, Vandana Pandit. *The erosion of federalism in Indian Constitution with special reference to centre-state relations.* Shivaji. Dr. K.K. Kavlekar, Prof. and Head, Department of Political Science, Shivaji University, Kolhapur.

4. Metheekul, Surat. *Local leaders and their role in national political process : A comparative study of Thailand and India.* Delhi.

5. Pandey, R.K. *Bharatiya prajatantrik prakriya ke prati nagarikon ke asantosh ka parimapan.* Vikram. Dr. (Smt.) Rashmi Shrivastava, Asstt. Prof., Department of Political Science, Vikram University, Ujjain.

6. Pillai, Lakshmi. *Decision-making in an administrative organization : A case study of Delhi Development Authority.* Delhi.

7. Rai, Shriprakash. *Thailand and the Asean : Quest for security.* JNU. Prof. Parimal Kumar Das, Centre for South East Asian and South West Pacific Studies, Jawaharlal Nehru University, New Delhi.

8. Sagar, Shiv Prasad. *Pressure groups in Indian politics : A critical evaluation.* Rohilkhand. Late Dr. G.P. Mehrotra.

9. Saigal, Krishan. *Parameters of India's Ocean policy : A systems analytical perspective.* Panjab.

10. Sharma, Dipti. *Role of the women of Assam in the freedom movement during the period 1921-1947 with special reference to the Brahmaputra Valley.* Gauhati, Dr. D.P. Barooah, Prof., Department of Political Science, Gauhati University, Guwahati.

11. Sinha, Punam. *Bhutan aur uske padosi rajya, 1949 se aaj tak ke sandarbh mein.* BHU. Dr. Nalini Pant, Reader, Department of Political Science, Banaras Hindu University, Varanasi.

12. Sumati, Vadapalli. *Modernisation of the Nizam's administration : Socio political linkages in the nineteenth century.* Hyderabad. Prof. R.V.R. Chandra Sekhara Rao, Head, Department of Political Science, University of Hyderabad, Hyderabad.

13. Tripathy, Amulya Kumar. *The dynamics of dependence and reciprocity international relations : A case study of American policy towards the military Government under President Mobutu Seko of Zaire, 1965-1978.* Sambalpur. Dr. L.N. Mishra, Reader, Department of Political Science, Sambalpur University, Burla.

14. Varshney, Rajesh Chand. *Bharatiya Sansad dwara 1966 se 1979 tak parit adhiniyam evam karyavahiyon ka Mahatma Gandhi ke vicharon ke sandarbh mein adhyayan.* Rohilkhand. Sri B.S. Verma, K.G.K. College, Moradabad.

Economics

1. Antony, C.A. *Environomics : A financial estimate of environmental pollution control and abatement schemes in Eloor Edayar Industrial Belt.* CUST. Dr. K.C. Sankaranarayanan, Prof. and Head, Department of Applied Economics, Cochin University of Science and Technology, Cochin.

2. Ashok Kumar. *Impact of risk and uncertainty on vegetable production and farm income in Kangra District of Himachal Pradesh.* HP Krishi. Dr. T.V. Moorthi, Department of Agricultural Economics, Himachal Pradesh Krishi Vishwavidyalaya, Palampur.

3. Banerjee, Sanjiban. *A perspective plan for agricultural development with optimum linkages for the District of Raisen M.P. with the targetted objective of lifting and sustaining the entire population above the poverty line.* Bhopal.

4. Bhatnagar, Kavita. *The economics of black money with special reference to India.* Rohilkhand. Dr. P.S. Saxena, Hindu College, Moradabad.

5. Chole, Raosaheb Ramrao. *Stratification opportunity structure and technological change in rural Marathwada.* Marathwada Agrl. Dr. G.K. Sangle, Head, Department of Agricultural Extension, Marathwada Agricultural University, Parbhani.

6. Gupta, Rameshwar Lal. *An appraisal of the public distribution system of essential commodities in Rajasthan.* Rajasthan. Dr. K.R. Sharma, Department of A.B.S.T., Sukhadia University, Udaipur.

7. Kaushik, Dinesh Chandra. *An econometric analysis of cost and returns of sugarcane and its products in District Meerut, U.P.* CSAT, Kanpur. Dr. M.P. Azad.

8. Korakandy. Ramakrishnan. *Technological change and the development of the primary fishing industry of Kerala : A study of limited growth.* CUST. Dr. K.C. Sankaranarayanan, Prof. and Head, Department of Applied Economics, Cochin University of Science and Technology, Cochin.

9. Kulkarni, Prakash Balwant. *A study of imbalance in the growth of cooperative movement in Sangli District.* Shivaji. Dr. J.F. Patil, Reader, Department of Economics. Shivaji University, Kolhapur.

10. Kushwaha, Ram Bai. *Bhopal Sambhag mein sehakari krishi sakh samitiyan : Ek vivechanatmak mulyankan.* Bhopal.

11. Mangal Prasad. *An econometric study of agricultural growth in relation to industrial growth during the plan periods in U P.* CSAT, Kanpur. Dr. R.I. Singh, Prof., Department of Agricultural Economics and Statistics, Chandra Shekhar Azad University of Agriculture and Technology, Kanpur.

12. Meera Bai, M. *An economic evaluation of industrial estates in Kerala.* CUST. Dr. K.C. Sankaranarayanan, Prof. and Head, Department of Applied Economics, Cochin University of Science and Technology, Cochin.

13. Mukherji, Indrani. *A new international economic order and the third world.* Rabindra Bharati.

14. Nagesh Kumar. *Foreign controlled enterprises in Indian industry.* Delhi.

15. Saranga Pani, Bommaraju. *Organisational pattern and levels of living of handloom weavers : A study of Coastal Andhra Pradesh.* Andhra.

16. Singhal, Arun. *The evolution of viable economic model of a sugar unit and the study of some selected sugar units of Tarai Region. Rohilkhand.* Dr. A.D. Sharma, S.M. College, Chandausi.

17. Srinivasa Rao, Kankipati. *Indian public sector banks and the productivity question.* Andhra.

18. Vijayalakshmi. *Some aspects of technological change in public sector industries.* Madurai.

Law

1. Antharjanam, D. Sukumari. *Women and criminality.* CUST. Dr. R. Prasannan, Member, Kerala Public Men Commission, Trivandrum.

2. Sharma, Soma Nath. *Personal Liberty under the Indian Constitution : A study of the judicial interpretation and social perception.* BHU. Prof. R.K. Mishra, Department of Law, Banaras Hindu University, Varanasi.

Public Administration

1. Wasmatkar, Narayan Digambar. *Impact of welfare administration and welfare schemes on the scheduled castes and scheduled tribes in Chandrapur District.* Nagpur. Dr. S.G. Deogaonkar, Department of Political Science, Anand Niketan College, Warora.

Military Studies

1. Saxena, Satish Chandra. *Generalship of Babur.* Rohilkhand. Dr. B.R. Pandey, R.P. Degree College, Meerganj.
2. Sharma, Raghuvir Sharan. *Super-power interest in the Indian-Ocean.* Rohilkhand. Dr. B.K. Tandon, Bareilly College, Bareilly.
3. Surendra Singh. *Changing technologies and the new concept of Armoured war fare.* Rohilkhand. Dr. N.S. Chaudhry, Bareilly College, Bareilly.

Education

1. Budhisagar, Meena. *Development and comparison of instructional material developed by using advance organizer model and operant conditioning model for teaching educational psychology to B Ed. students.* Devi Ahilya. Dr. D.N. Sansanval, Department of Education, Devi Ahilya Vishwavidyalaya, Indore.
2. Dutta, Avantika. *Relative effectiveness of inductive and deductive teaching methods for learning biological concepts.* BHU. Prof. T.S. Rao.
3. Faroqui, Syed Shah Mohammad Mazheruddin. *Study of alienation of Muslim minority students in Telangana Area in relation to their educational and other demographic factors.* Osmania.
4. Gupta, Gaysu. *Alternative techniques of training children for the development of concept of conservation.* Delhi.
5. Kaile, Harnek Singh. *Intelligence and creativity as predictors of scholastic achievement in mother tongue and foreign language at different levels of socio-economic status.* Panjab.
6. Mann, Amarjit Kaur. *Development and professional competency of social studies and mathematics teachers as related to process and structure variables of educational environment in Government in-service training centres.* Panjab.
7. Narinder Paul. *Specific physical fitness tests for soccer players.* Panjab.
8. Radhamony Amma, K. *Evolving instructional techniques appropriate to the development of various scientific skills among secondary school pupils in Kerala.* Kerala. Dr. K. Sivadasan Pillai, Director, Centre for Adult Education and Extension, University of Kerala, Trivandrum.
9. Ratna Kumari, B. *A study of human values of high school students in different types of schools of Andhra Pradesh in relation to their socio-economic status and mass media exposure.* Osmania.
10. Roy, Satyabrata S. *A critical evaluation of the high school general science textbooks in Bangladesh.* Baroda.
11. Seethamony, D. *Familial and social factors associated with under achievement in school subjects.* Kerala. Dr. Mercy Abraham, Reader, Department of Education, University of Kerala, Trivandrum.
12. Sharma, Sureshchandra G. *A study of factors related to feedback receptivity of student teachers in the College of Education in Vidarbha.* Nagpur. Dr. (Mrs) Kalyanpurkar, Post Graduate Department of Education, Nagpur University, Nagpur.
13. Upadesh Kumari. *A study af behaviour pattern and certain character traits of prospective teachers with high teaching aptitude and low teaching aptitude.* Banasthali. Dr. R.P. Singh, Head, Department of Education Banasthali Vidyapith, Rajasthan.

Commerce

1. Agarwal, Ajai Kumar. *Krishi vitt pradan karne vali sansthaon ka Rampur Jile mein 1969 se adhyayan.* Rohilkhand. Dr. J.K. Jain, Govt. Raza P.G. College, Rampur.
2. De, Niranjan. *Cost accounting system in cotton textile industry in India and its impact on profit management.* Calcutta.
3. Ganga Prasad. *Working and management of U.P. State Cement Corporation.* BHU. Dr. M.B. Shukla.
4. Gupta, Govind Ram. *A critical study of the role of S.B.I. as financer in Meerut Commissionary since 1978.* Rohilkhand. Dr. S.C. Jain. Vardhman College, Bijnor.
5. Gupta, Malaykumar. *Credit planning and the choice of projects and schemes by the commercial banks in the rural areas.* Calcutta.
6. Malhotra, Sagar Vijay. *Determinants of equity prices in India.* HP.
7. Sharma, Mahesh Kumar. *Land development banking in U.P.* Rohilkhand. Dr. N.L. Sharma, Bareilly College Bareilly.
8. Singh, Sheo Naik. *Corporate sickness in India : A case study of cotton textile industry.* Rohilkhand. Dr. B.L. Sharma, Bareilly College, Bareilly.
9. Srivastava, Nirmal Kumar. *Cooperative leadership in Bihar : Problems and prospects.* Magadh.
10. Vashisht, Avtar Krishan. *Performance appraisal of commercial banks in India.* HP.

Home Science

1. Joshi, Uma Girishchandra. *Effectiveness of teaching a course introduction to home science education extension through multi media strategies to the first year home science students of Faculty of Home Science, Baroda in relation to the selected student characteristics.* Baroda.
2. Kalirawana, Darshan. *Effect of zinc deficiency during prenatal and postnatal period on growth, zinc status and brain composition of rats.* HAU.
3. Neelam Bala. *Improvement of nutritional value of pearl millet by fermentation and utilization of the fermented products.* HAU.

Business Management

1. Gupta, Vinod Kumar. *Materials management in cement industry with special reference to cement units in Rajasthan.* Rajasthan. Dr. K.K. Sharma, Department of Business Administration, University of Rajasthan, Jaipur.
2. Nandhi, Mani Arul. *A comparative study of female and male leadership behaviours with reference to the banking sector.* Delhi.
3. Ramanujulu, Kothapa. *An empirical investigation of the role and the performance of the small business administration counseling programs as viewed by the small business in the selected states of United States of Americall.* Andhra.
4. Verma, Ram Narain. *Financial performance of development banks in India : An evaluation.* BHU. Dr. R.M. Srivastava, Reader, Department of Management Studies, Banaras Hindu University, Varanasi.

INDIAN COUNCIL OF MEDICAL RESEARCH

Applications are invited upto **30th June 1988** for the following posts at the Council's Institutes/Centres :

1. At the National Institute of Virology, Pune : Assistant Director (Statistics)—One post
(Scale of Pay : Rs. 3700-125-4700-150-5000).

Qualifications and Experience : Essential : (i) 1st class M.Sc. in statistics with 12 years research/teaching experience **or** Ph.D. in statistics with 10 years research/teaching experience (ii) Original work as evidenced by publications.

Job Requirements : (i) To carry out research in Statistics methodology as applied to field of Biology and Medicine. (ii) To collect, compile and analyse medical and public health data. (iii) To guide bio-medical Scientists in planning of experiments and data collection. (iv) Teaching of Biostatistics in the courses run by the Institute. (v) Any other relevant work as advised by superiors.

2. At the Microbial Containment Complex (NIV). Pune : Deputy Director—One post
(Scale of Pay : Rs. 4500-150-5700).

Qualifications and Experience : Essential : (i) M.B.B.S. or 1st class Master's degree in Public Health Engineering with 12 years research experience in Virology/Microbiology/Public Health Engineering. **or** 10 years research/teaching experience for those with M.D./Ph.D./D.Sc. in Virology/Microbiology/Public Health Engineering. (ii) Original work as evidenced by publications.

Job Requirements : The selected individual would be expected to supervise the construction and working of laboratory complex where bio-hazardous material would be handled. He would also be responsible for carrying out research programme in the laboratory complex.

3. At the Institute for Research in Reproduction, Bombay : Deputy Director—One Post
(Scale of Pay : Rs. 4500-150-5700)

Qualifications and Experience : Essential : M.D. in obstetrics and Gynaecology or D.M. in Endocrinology with original work as evidenced by published papers. Evidence of leadership with 10 years of research/teaching experience in the field of Reproductive Endocrinology or Contraceptive evaluation or infertility.

Job Requirements : This is a senior post. The incumbent will be responsible to the Director and concerned with researches related to Reproductive Endocrionology and assist in development of Clinical Reproductive/ Training programmes relating to infertility.

4. At the Cytology Research Centre, New Delhi : Assistant Director (Ultrastructure)—One post
(Scale of Pay : Rs. 3700-125-4700-150-5000).

Qualifications and Experience : Essential : (i) M.B B.S./1st class M.Sc. in Life Science/Zoology/biophysics with 12 years research/teaching experience **or** M.D./Ph D. with 10 years research/teaching experience in Ultrastructural morphology. (ii) Original work as evidenced by publications.

Desirable : At least 5 years experience in SEM and TEM Sample preparation and interpretation.

Job Requirements : (i) To assist in planning and execution of various research programmes in the field of Ultrastructure. (ii) To organise teaching and training programmes in Ultrastructural teaching and training programmes in SEM and TEM sample preparation and inter-pretation.

5. At the Institute of Immunohaematology, Bombay: Senior Research Officer—One post
(Scale of Pay : Rs. 3000-100-3500-125-4500)

Qualifications and Experience : Essential : M.B B S./1st class M.Sc./Master's degree in Biological Sciences/Biochemistry with 6 years experience in research/teaching **or** M.D./Ph.D. with 2 years experience in research/teaching.

Job Requirements : To undertake research in the field of immunohaematology in general and specifically in Immunochemistry and/or Cellular Biology.

6. At the Regional Medical Research Centre, Bhubaneswar : Senior Research Officer—Two post
(Scale of Pay : Rs. 3000-100-3500-125-4500)

Post No. 1—Senior Research Officer (Statistics)

Qualifications and Experience : Essential : 1st class M.Sc./Master's degree in Statistics/Mathematics with 6 years experience in research/teaching **or** Ph.D. with 2 years experience in research/teaching.

Job Requirements : (i) The officer will co-operate with scientists working at the centre in designing field and experimental studies on different diseases. (ii) He/She will compile epidemiological data collected during field studies conducted by the scientists. (iii) He/She will help the research staff working in different projects to analyse the data with particular reference to the statistical evaluation.

Post No. 2. Senior Research Officer (Medical)

Qualifications and Experience : Essential : M.B.B.S. with 6 years experience in teaching/research in community medicine/clinical medicine or related subject or M.D. with 2 years experience in research/teaching.

Job Requirements : The officer will be required to plan, design and conduct field studies on prevalent communicable disease in the region.

7. At the Institute of Pathology, New Delhi Senior Research Officer (Cellular Biology) One post
(Scale of Pay : Rs. 3000-100-3500-125-4500)

Qualifications and Experience : Essential : M.B.B.S./1st class M.Sc. in Biological Sciences or Medicine from a recognised University with 6 years experience in research/teaching. **or** M.D./Ph.D. with 2 years experience in research/teaching in the field of Cellular Biology with particular reference to issue culture, trace elemental analysis and electron microscopy.

Desirable : Practical experience in the field of pathology preferably tissue culture and trace elemental analysis.

Job Requirements : The incumbent should be able to set up tissue culture cell lines such as those of macrophages, endothelial cells, melanocytes etc. In addition work involving trace elemental analysis at biochemical and ultrastructural levels will be expected to be coordinated.

Age : Below 50 years for the posts of Deputy Director and below 45 years for the posts of Assistant Director and Senior Research Officer. SC/ST candidates allowed relaxation in accordance with Govt. of India rules.

Allowances as per Central Govt. rules are admissible on the above pay scales.

Benefits of pension admissible. Private practice is not allowed. However, NPA as per rules of the Council is admissible to medical graduates only. Candidates called for interview for the posts of Deputy Director and Assistant Director will be paid 1st class rail fare and for the posts of Senior Research Officer will be paid 2nd class rail fair by shortest route, on production of documents.

Applications from employees working in Central/State Govt. Deptts./Public Sector Undertakings and Govt. funded research agencies must be forwarded through proper channel.

Application forms can be obtained from the Office of the Director General, Indian Council of Medical Research, Ansari Nagar, Post Box No. 4508, New Delhi-110029. Forms duly completed should be sent to the Director General, Indian Council of Medical Research, Ansari Nagar, Post Box No. 4508, New Delhi 110029 with a crossed IPO for Rs. 8/- payable to the DG, ICMR, New Delhi. SC/ST candidates are exempted from this payment.

Incomplete and late application or without postal order will not be entertained. The name of the post and the Institute/Centre must be indicated in the application form.

Separate application form should be submitted for each post with crossed IPO for Rs. 8/- and for each Institute.

NATIONAL REGISTER

OF WRITERS, TRANSLATORS & RESOURCE PERSONS OF SCIENTIFIC AND TECHNICAL SUBJECTS IN HINDI AND OTHER INDIAN LANGUAGES

A national register of scientific and technical writers, translators and resource persons/experts belonging to various branches of science, technology, medicine, agriculture and humanities and well-versed in Hindi and other Indian languages is being compiled by the Commission for Scientific & Technical Terminology. The idea is to utilise this expertise, wherever necessary, in the various fields of activities aimed at change of medium in university education, like university level book-production, evolution of terminology, preparation of definitional dictionaries, review of scientific & technical literature and examination of research theses on scientific and technical subjects written in Hindi and other Indian languages. Scholars committed to the cause of enrichment of Hindi and Indian languages and desirous of rendering valuable assistance in related activities, are requested to fill the proforma (format) given below and send it at their earliest to :

Chairman,
Commission for Scientific & Technical Terminology
[Ministry of Human Resource Development],
West Block VII, R.K. Puram, New Delhi-110066.

Format [Proforma]

1. Name & address
2. Date of Birth
3. Designation & official address (last post held, if retired)
4. Educational Qualification
5. Specific filed of expertise
6. Experience
7. Published works in the field of expertise
8. Languages, in which well-versed
9. Any other relevant Information

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ADDITIONS TO AIU LIBRARY

HARYANA AGRICULTURAL UNIVERSITY

HISAR

Second Corrigendum to Advertisement No. 1/88

In partial modification of advertisement No. 1/88 published in these columns on **8.2.88** some amendments are notified as under :

Sr. No. 3 : Professor of Family Resource Management

The qualifications may be read as under :

- (i) At least second class B.Sc. (Home Science)
- (ii) At least second class M,Sc. in Home Management/Family Resource Management.
- (iii) Ph.D. in Home Management/ Family Resource Management.
- (iv) At least ten years experience of teaching/research/extension out of which at least 5 years should be as Assoc. Prof./equivalent rank.

Note : One or more of the qualifications relaxable for candidates with outstanding attainments/experience.

Sr. No. 5: Professor of Physical Education

Note No. 2 is added as under :

In addition to the relaxation of educational qualification/qualifications with regard to the type and leng h of experience also relaxable for candidates otherwise found very suitable.

Sr, No 12 : Associate Professor (Child Development)—Two

The words appearing in bracket "If candidates with Ph.D. are not available, then non-Ph.D. with 10 years experience will be considered" have been deleted.

Out of two posts of Associate Prof. (Child Development) one may be read as Assoc. Prof. of Child Psychology with the following qualifications :

- (i) At least second class B.Sc. Home Science/B.A. with Psychology or Home Science.
- (ii) At least second class M.Sc. in Child Development/second class M.A. in Psychology.
- (iii) Ph.D. in Child Development/Ph.D. in early Childhood Education/ Ph.D. in Psychology.
- (iv) At least five years experience of teaching/research/extension in the field of Child Development/Early Childhood Education / Child Psychology.

Note : Common to both posts of Assoc. Prof. (Child Development)

One or more of the qualifications relaxable for candidates with outstanding attainments/experience.

Sr. 13 : Associate Prof.

(Family Resource Management)

The words appearing in bracket "If candidate with Ph.D. are not available, then Non-Ph.D. with 10 years experience will be considered" have been deleted and the note is added below the qualifications as under :

Note : One or more qualifications relaxable in case of candidates found otherwise very suitable.

Sr. No. 59 to 61

Reservation for S.C./B.C./ESM for these posts depends upon the number of posts available.

Note 6 :

The upper age limit does not apply to the posts from Sr. No. 46 to 55 and 59 to 61.

The last date for receipt of applications for the posts mentioned above is extended upto **31.5.88.** Those who have already applied in response to our advertisement No. 1/88 need not apply again.

REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY

P.O. IIT, POWAI, BOMBAY-400076

Advertisement No. C-215/87-88

Applications are invited for the following post in the prescribed form obtainable from the Registrar, Indian Institute ot Technology, P.O. IIT, Powai, Bombay-400076 on request accompanied by self-addressed envelope (23 cm x 10 cm) on or before 15th June, 1988 Persons employed in Government/Semi-Government Organisations or Educational Institutions must apply through proper channel. Completed applications together with the requisite copies of certificates and crossed postal order for Rs. 7.50 as application fee should be sent to the Registrar on or before **30th June, 1988.** (No application fee need be sent by SC/ST candidates). Candidates called for interview will be paid first class rail fare from the place of their residence to Bombay and back by the shortest route. Relaxation of standard for SC/ST candidates exists as per Govt. of India rules.

Post : Deputy Registrar (Material Management)—One post.

Scale of Pay : Rs. 1200-50-1300-60-1900.

Total gross emoluments on the minimum of scale is Rs. 3909/-.
(Scale likely to be revised after implementation of the recommendations of the Fourth Pay Commission).

Job Description

The Deputy Registrar (Material Management) works under the control of Registrar and is responsible for all matters pertaining to the procurement of equipment, consumables, instruments, furniture and fixtures (both indigenous and from abroad). The job requires familiarity with rules and regulations relating to stores purchase, stores accounting, stores verification etc. and government procedures for importing items from abroad.

Qualifications

1. A good Bachelor's degree in Arts, Science, Commerce, Engineering or

Technology of a recognised University,

2. A post-graduate degree or Diploma in any of the above fields or in Public Administration / Material Management of a recognised Institute/University or its equivalent; or recognised qualifications as Chartered/Cost/SAS Accountant.

Experience

A minimum of 10 years of relevant administrative experience preferably in a Government, Educational or Research Institute or in a Commercial Organisation of a national standing. Out of this, atleast 5 years should be in a responsible position. The candidates would be expected to have some familiarity with academic activities and working procedures in higher educational institutions. In case of necessity, the incumbents may be required to hold additional or exclusive charge of any other area.

Desirable

1. Teaching and Research experience or experience of life on a residential educational campus.
2. Experience of computer systems for information processing and retrieval.

REGISTRAR

UNIVERSITY OF KALYANI

KALYANI, WEST BENGAL

Pin—741235

Adv. No. 2/88 **Dated : 13-5-88**

Applications are invited for the post of Research Associate under Research Project of Prof. S.C. Lahiri, Professor of Chemistry entitled "Production of Biogas from Mixed Biomass".

Name of Post : Research Associate —One (purely temporary—initially for one year, extendable up to three years).

Scale of Pay : Rs. 2000/- p.m.

Qualifications

M.Sc. in Chemistry/Zoology (with Cell biology or Parasitology as special papers)/Botany (with Micro biology/ Plant Pathology/Plant Physiology as special papers).

Ph.D. and research experience in Microbiology or parasitology (particularly in research institutes or laboratories of repute) will be preferred.

Applications must be submitted in the prescribed form which may be obtained from the office of the undersigned from 23-5-88 to 13-6-88 personally or by sending self-addressed stamped (Rs. 1.80) envelope (25 c.m. × 12 c.m.) on payment of Rs. 7-50 by crossed Indian Postal Order in favour of the 'University of Kalyani'. Persons already in employment should apply through proper channel. Applications should be submitted in envelopes superscribed with the name of the post applied for along with attested copies of certificates, marksheets in respect of all the examinations passed and reprints of publications/books and the same must reach the office of the undersigned on or before **13-6-88.**

Forms will be distributed between 11-30 a.m. and 3 p.m. on full working days. Candidates called up for interview will have to appear for the same at their own cost.

P. Sircar
REGISTRAR

NATIONAL INSTITUTE OF HYDROLOGY

JAL VIGYAN BHAWAN ROORKEE

No. 5/88-NIH (II) **Dated : May 9, 1988**

CORRIGENDUM

The last date for obtaining the blank application forms for the posts advertised vide advertisement No. 5/88-NIH dated 29th March, 1988 has been extended upto **31st May, 1988.** The last date for submitting the applications duly completed in all respect has been extended upto 15th June, 1988.

Bureau of Police Research & Development

Ministry of Home Affairs

GOVERNMENT OF INDIA FELLOWSHIP SCHEME FOR DOCTORAL WORK IN CRIMINOLOGY AND POLICE SCIENCE

Applications are invited from Indian Nationals for the award of fellowships for Doctoral Work in Criminology and Police Science. The number of Fellowships to be awarded is six. The value of each fellowship will be Rs. 800/- per month for the first two years & Rs. 950/- in the third year plus a contingency grant of Rs. 5000/- per annum. The Fellowships are tenable for three years. Departmental assistance of Rs. 3000/- per year will be paid to the Institution in which the Fellow is registered for the Ph.D.

Qualifications : Post-Graduate Degree (not less than 55% of marks or equivalent grade) in Criminology, Sociology, Social Work, Pyschology, Social Anthropology, Public Administration, Political Science or Law with IInd Class Bachelors' degree in aforesaid subjects. The candidate should be registered for Ph.D. Programme with any recognised University in India or get registered within three months of the award of fellowship.

Age : Preferably below the age of 30 years.

Rules : Copies of the rules of Fellowship Scheme and Prescribed application can be obtained on request from the Deputy Director (Research), Bureau of Police Research & Development, Ministry of Home Affairs, Government of India, Block No. XI, 4th Floor, CGO Complex, Lodi Road, New Delhi-110003.

Due Date : Application in the prescribed form should be addressed to Director General, Bureau of Police Research & Development (MHA), Block No. XI, 4th Floor, CGO Complex, Lodi Road, New Delhi-3. superscribing the cover "Application for DOCTORAL WORK IN CRIMINOLOGY & POLICE SCIENCE", so as to **reach on or before 30.6.88.**

If a candidate is already working in a University or Government institution, he/she should apply through the Head of the Institution in which he/she is working. Every application should be accompanied by all documents mentioned in application Form.

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ASSAM AGRICULTURAL UNIVERSITY

JORHAT

Advertisement No. 4/88.

Applications are invited in the prescribed applications form for the following posts in the Assam Agril. University.

1. 3 (three) posts of Associate Deans one each for the College of Home Science, Jorhat, Lakhimpur College of Vety. Science, Lakhimpur and Fishery College, Raha in the scale of pay of Rs. 1500-60-1800-100-2000-125/2-2500/- (unrevised) per month plus other allowances as admissible under the University rules.

2. 1 (one) post of Associate Director of Student Welfare in the scale of pay of Rs. 1500-60-1800-100-2000-125/2-2500/- (unrevised) per month plus other allowances as admissible under the University rules.

3. 1(one) post of Associate Director, Publication and Information in the scale of pay of Rs. 1500-60-1800-100-2000-125/2-2500/- (unrevised) per month plus other allowances as admissible under the University rules.

4. 1 (one) post of Associate Professor, Chemistry (Renewable Energy) in the scale of pay of Rs. 1200-50-1300-60-1900/- (unrevised) per month plus other allowances as admissible under the University rules.

Prescribed application form and other details regarding qualifications, experience etc. required for the above posts may be had by sending self-addressed 1.50 paise stamped envelope of the size 23 x 10 cm. from the undersigned. The last date of receiving application complete in all respects is **6th June 1988.** Applications for the candidates outside India shall be entertained on plain papers with all requisite particulars/information upto **15th June 1988.** Incomplete application shall not be entertained and summarily rejected.

K.N. Chutiya
DEPUTY REGISTRAR
(Personnel)

गुजरात विद्यापीठ : अहमदाबाद-380014

निम्न जगहों के लिए आवेदन-पत्र लिये जायेंगे

1. प्राध्यापक : 1.1 : आचार्य - म. दे. समाजसेवा : 1.2 : महाविद्यालय : 1.2 : समाजकार्य (4500-7300) : 2. : रीडर. (3700-5300) : 2.1 : ग्राम टेकनोलजी-रांधेजा : 2.2 : शिक्षण विकास योजना अधिकारी - विश्वविद्यालय अनुदान आयोग द्वारा स्वीकृत शैक्षणिक विकास कार्यक्रमों का आयोजन और मूल्यांकन करने हेतु अहमदाबाद के लिए. : 2.3 : ग्रन्थालय शास्त्र-अहमदाबाद : 2.4 : ग्राम विकास और ग्राम व्यवस्थापन (रूरल मैनेजमेंट ऐड रूरल डेवलपमेंट) : 2.5 : सादरा अथवा रांधेजा ग्रामसेवा केन्द्र में यंत्रविज्ञान (मेकेनिकल इंजीनियरी) 2.6 : आदिवासी शिक्षण : 2.7 : गृहविज्ञान (होम साईस) रांधेजा-ग्रामसेवा महाविद्यालय के लिए: 2.8 : संयोजक कम्प्यूटर विज्ञान यूनिट (अनुस्नातक योग्यतानुसार) 3000-4500 अथवा 3700-5300 : 3 : व्याख्याता (रर00-4000) : 3.1 : व्यायाम शिक्षक-सादरा : 3.2 : व्यायाम शिक्षिका-रांधेजा तथा अहमदाबाद के लिए तीन स्थान एम.ए. द्वितीय वर्ग तथा व्यायाम की स्नातकोत्तर उपाधिधारी के लिए : 3.3 : हिन्दी भाषा-साहित्य (आरक्षित) : 3.4 : समाजमानवशास्त्र (आरक्षित) : 3.5 : शिक्षण शास्त्र (आरक्षित) : 3.6 : सहायक ग्रंथपाल (सादरा, रांधेजा और अहमदाबाद के लिए) - (आरक्षित) : 3.7 : प्रौढ़ शिक्षण, जनसंख्या शिक्षण का कार्यक्रम संयोजक (सादरा और रांधेजा) : 3.8 : गांधीविचार : 3.9 :, सहायक कुलसचिव (हिसाब) : 3.10 : आरोग्य अधिकारी और डॉक्टर-रांधेजा, सादरा और अहमदाबाद प्रत्येक स्थान पर एक : 3.11 : ग्राम विकास और ग्राम व्यवस्थापन (रूरल मेनेजमेंट) : 3.12 : कम्प्यूटर प्रोग्राम और प्रशिक्षक : 3.13 : आदिवासी शिक्षण : 4 : टेकनीकल सहायक (1400-2300) : 4.1 : भाषा शिक्षण प्रयोगशाला के लिए : 4.2 : ग्रंथालय के लिए (आरक्षित) : 4.3 : बढ़ई, लोहार, उद्योग शिक्षक (आरक्षित) : 4.4 : कम्प्यूटर टेकनिकल सहायक : 4.5 : दफ्तर भंडार (आर्कैवल सेल) के लिए माइक्रोफोटोग्राफिस्ट :
4.6 : प्रौढ़शिक्षण काम के लिए एलेक्ट्रानिक उपकरण सहायक : 4.7 : रांधेजा ग्रामसेवा महाविद्यालय में गृहविज्ञान प्रयोगशाला सहायक : 4.8 : हिन्दी, गुजराती, और अंग्रेजी के शीघ्रलिपिक (स्टेनोग्राफर) : 4.9 : संगीत शिक्षक-रांधेजा और सादरा ग्रामसेवा महाविद्यालयों के लिए : 5 : इतिहास और संस्कृति का संग्रहालय संरक्षक : क्यूरेटर ऑफ म्यूज़ियम अथवा अनुस्नातक उपाधि और म्यूज्योलॉजी उपाधिधारियों के लिए (2200-4000) : 6 : वल्लभ विद्यालय बोचासण के लिए छात्रालय गृहपति मासिक वेतन मात्र-1000 : 7 : : 7.1 : बौद्ध तत्वज्ञान के संशोधक मासिक 1400 मात्र विद्यावाचस्पति अर्थात् पीएच.डी. उत्तीर्ण और संशोधन का अनुभव : 7.2 : बौद्ध-तत्वज्ञान का दस्तावेज संरक्षक (डाक्युमेंटलिस्ट) मासिक 1400 मात्र. : 8 :प्रूफ रीडर : (1200-2040)

योग्यताओं का विवरण आवेदन-पत्रों के साथ भेजना होगा। आवेदन-पत्र 31-5-88 तक कार्यालय में पहुँच जाने चाहिए। रु. 2-0 भेजकर कार्यालय से अर्जीपत्र आवेदन-फार्म मंगा लें। डाक से फार्म मगानेवालों को रू. :3-0: का मनीआर्डर भेजना होगा। मनीआर्डर कूपन में पूरा नाम, पता आदि विवरण लिखना आवश्यक है। स्वीकृत फार्म में अर्जी न भेजी हो तो उस पर कोई विचार नहीं होगा। आरक्षित स्थानों के लिए निर्धारित योग्यता प्राप्त उम्मीदवार न मिलने पर वे स्थान अनारक्षित उम्मीदवारों द्वारा अस्थायी रूप में भरे जायेंगे। मूल वेतनमान के अतिरिक्त माहवार भत्ते और धर का किराया मिलेंगे।

(विनोद त्रिपाठी)
कुलसचिव

ता.25-4-1988.

KURUKSHETRA UNIVERSITY
KURUKSHETRA

Advt. No. 2/88

Applicattons on the prescribed form are invited for the following posts :

1. Readers (Grade : Rs. 3700-125-4700-150-5700 (U.G.C.)

(i) Physics—(1) Preference will be given to the candidates possessing specialisation in Semi-conductor Electronics.

(ii) Education—(2) (Programme of Dept. of Special Assistance—Participation of Education Dept.)

Specialisation

(One each in Thrust Area (A) & (B).

Thrust Areas

- (a) Educational Management (Economics of Education, Managing Organisation Human Resource Development, Policy Research, Comparative Education, Motivation).
- (b) Education Technology (Science Education, Psychological Basis of Educational Technology.

2. Lecturers (Grade : Rs. 2200-75-2800-100-4000) (U.G.C.)

(i) Management—(1) **Reserved for Scheduled Caste.**

Specialization : Personnel Management with some background in Marketing Management.

(ii) Social Work—(1)

Specialization : Family & Child Welfare.

(iii) Psychology—(2) (One with specialization of Mental Ability).

(iv) Music—(1)

Specialization : Vocal

(v) Institute of Sanskrit & Indological Studies.—(1)

Preferable knowledge of Tibetan Language.

(vi) French—(1)

Specialization : Theoretical : Contemporary Literature with special reference to surrealism. Practical : Familiarity with technical and Scientific Vacabulary for conversation.

(vii) Mathematics—(1)

Specialization : Algebra and Theory of Numbers.

(viii) Computer Science & Application—(1).

(ix) Education—(2)

(Programme of Dept. of Special Assistance—Participation of Education Dept.)

Specialization

(One each in the Thrust Area (a) & (b) as required above in the case of Readers for this department).

(x) Physical Education—(1) **Temporary but likely to continue.**

Specialization : History and Principles of Physical Education; and Sports Psychology/Techniques of officiating and coaching.

(xi) Education—(2) (One reserved for Scheduled Caste).

3. For University College of Education.

(i) Lecturer in Teaching of Mathematics—(1)

Grade : Rs. 2200-75-2800-100-4000 (UGC).

(ii) Lecturer in Music (Leave Vacancy—(1)

Grade : Rs. 2200-75-2800-100-4000 (UGC).

4. For University College Kurukshetra

(i) Lecturer in history—(1)

Grade : Rs. 2200-75-2800-100-4000 (UGC).

(ii) Director of Physical Education —(1)

Grade : Rs. 700-40-1100-50-1300-Ass.-50-1600

5. For Depariment of Geography

(i) Research Assistant—(1) (on temporary basis in leave vacancy).

Grade : Rs. 1600-50-2300-EB-60-2660.

Qualifications : Consistently good academic record with first or High Second Class (55% marks or Grade-B in the seven point scale) in Master's Degree.

6. Publication of Digest

Research Assistant—(1)

Grade : Rs. 1600-50-2300-EB-60-2660.

Qualifications : (a) Consistently good academic record with first or High Second Class (55% marks or Grade-B in the seven point scale) in Master's Degree in Sanskrit :

(b) Good knowledge of English and use of diacritical marks in transcribing Sanskrit words into English.

7. Finance Officer—(1)

Grade : Rs. 3000-100-3500-125-4500.

Qualifications : Either (1) A Bachelor's Degree with Chartered Accountant/SAS or 2nd Class Master's Degree in Commerce.

(2) Five Years' Supervisory experience in Accounts/Budgeting etc. OR B(1) A second class Master's Degree or LL B. degree (Degree being relaxable in case of internal candidates with especially good record of service).

(3) At least 10 years' supervisory experience (not below the level of Assistant Registrar) of which at least 5 years' supervisory experience should be in Accounts/Budgeting etc.

8. Deputy Librarian (1) Temporary in the leave vacancy upto 29.1.89 in the first instance.

Pay Scale : Rs. 1200-50-1300-60-1900 (UGC-pre-revised).

Qualifications : (a) First or second class M.A./M.Sc./M.Com. plus a first or second class B. Lib. Sc. or Diploma in Library Sc. The degree of M.Lib.Sc. being a preferential qualification.

(b) At least 7 years' experience as Librarian or in a responsible professional capacity in a Library.

(c) Good academic qualifications and research experience (with publications). The qualifications must be in general comparable to those of Readers in the Universities.

Qualifications for the teaching posts are as prescribed by the University Grants Commission. Details of qualifications for posts at Sr. Nos. 1 to 4 alongwith the prescribed application form (for the posts from Sr. Nos. 1 to 6 can be had from the Manager, Printing & Publications, Kurukshetra University Press, Kurukshetra on payment of Rs. 10/- on the counter or by making a written request accompanied by self-addressed envelope (23 cms x 10 cms) duly stamped for Rs. 8 for sending by registered post alongwith Bank Draft for Rs. 10 drawn in favour of the Registrar, Kurukshetra University and payable at the State Bank of India, University Campus, Kurukshetra.

For the posts at Sr. No. 7 & 8 the applications should be on plain paper in the following proforma : (1) Name (2) Father's Name (3) Date of birth (4) Permanent Address (5) Correspondence

Address (6) Schedule Caste/Schedule Tribes/Backward Class/Ex-servicemen (7) Qualifications : (i) Name of the Examination passed (ii) University/Board (iii) Marks obtained (iv) Division (v) Subjects. (8) Experience : (a) Post held (b) Employer (c) duration (d) Reasons for leaving. (9) Total present pay and pay scale. (10) Pay acceptable. (11) General remarks, if any.

Applications in the prescribed proforma complete in all respects duly forwarded by the competent authority (in the case of those who are in service), should reach this University by **6-6-1988** along with Bank Draft for Rs. 15 drawn in favour of the Registrar, Kurukshetra University, Kurukshetra and payable at the State Bank of India, University Campus, Kurukshetra or the amount may be deposited with the Cashier of this University and the original receipt be enclosed with the Application Form.

The applications not in the prescribed proforma or received after the last date or incomplete applications are liable to be rejected. The candidates who have already applied for the post of Reader in Physics in response to Advt. No. 3/87 and for the post of Finance Officer in-response to our Advt. No. 1/87, need not apply again.

REGISTRAR

UNIVERSITY OF NORTH BENGAL

No. F. 22/Advt./Estt./17/R-88

Dated : 5-5-88.

Applications in preseribed forms are invited from Indian Citizens for the following posts :

1. **Professor** at the Centre for Himalayan Studies : Post one. (Specialisation: Sociology/Social Anthropology). (Reserved for S.T.)

Reader at the Centre for Life Science (Botany) : Post one. (Specialisation : Plant Physiology; Preference will be given to one who can also teach Phycology/Pteridology / Palaeobotany / Anatomy).

Lecturer at the University College of Law : Post one. (Preference will be given to S.C. candidate for the post provided he fulfils the essential qualifications laid down and found suitable. If S.C. candidate is not available or not found suitable, post will be filled up from general category. Hence non-S.C. candidates may also apply.)

Scales of Pay : Professor Rs. 1500-2500/-, Reader : Rs. 1200-1900/- respectively with other allowances and benefits as per University rules. Lecturer in Law : Rs. 700-1600/- with other allowances and benefits as per rules.

Qualifications as prescribed by the University Grants Commission. Details of qualifications for **Professor, Reader** and **Lecturer** may be obtained with application forms.

Choice of selection committee may not necessarily be confined to those who apply formally. No application except in prescribed application forms will be considered.

Prescribed application forms may be obtained from the office of the Registrar personally on payment of Rs. 5/- (Rs. 3/- for S.C./S.T.) in cash at the University Cash Counter or by sending a self-addressed envelope of 25 x 13 cms. affixed with stamps worth Rs. 3/- accompanied by crossed I.P.O./Bank Draft of Rs. 5/- (Rs. 3/- for S.C./S.T.) in favour of the University of North Bengal. Filled in application forms (7 copies) along with one self-addressed unstamped envelope must reach the office of the Registrar, P.O. North Bengal University, Dt. Darjeeling, Pin : 734430 on or before **2-7-88.**

REGISTRAR

MANIPUR UNIVERSITY
CANCHIPUR : IMPHAL

Advertisement No. 6/88

Dated the 7th May, 1988.

Applications are invited for 1 (one) post of **Controller of Examinations** in the Scale of Pay of Rs. 4500-150-5700/- p.m. plus admissible allowances.

Essential Qualifications and Experience

(i) First or high Second class Master's Degree or equivalent qualifications; (ii) Considerable experience in academic administration in a responsible position in a University or in an institution of higher learning with particular reference to : (a) Formulation and implementation of development schemes/programmes; (b) Up-keep and maintenance of students' academic performance records preferably through modern management techniques; (c) Students' affairs in general, like assisting and co-ordinating in admissions, institution and award of scholarship/fellowships, academic matters pertaining to recognised/maintained institutions, academic linkages/collaborative programmes; (iii) Ability to take organisational charge of meetings and academic affairs in the University; (iv) Adequate experience in Semester system, letter grading and continuous evaluation techniques; or Experience of conducting University examinations and other allied work at the executive level for at least 10 years; (v) should have a record justifying entrusting of confidential work.

The University may appoint any person who is found suitable for the post in consideration of his/her previous experiences and other qualifications. It will also be open to the University to consider the names of suitable candidates who may not have applied.

Candidates invited for interview will be given second class railway fare by the shortest route on production of travel documents.

Applications on plain paper (in duplicate) along with attested copies of Certificates in support of qualifications and experiences showing candidate's name, date of birth, mailing & permanent address, father's name, academic and professional attainments, administrative/teaching/ research experience, field of specialization, publications (to be enclosed with reprints), Seminars/Conferences attended, details of visits to foreign countries and assessment reports from at least two persons well acquainted with the candidate's professional work should reach the Registrar, Manipur University, Imphal-795003 on or before **6th June, 1988.**

Applications received late or incomplete in any respect may not be entertained. Persons already in service must apply through their employers so as to reach this office on or before the last date fixed. No candidate will be considered for appointment unless he/she produces a 'No Objection Certificate' from his/her employer at the time of interview.

Th. Joychandra Singh
REGISTRAR

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University News

10

MONDAY, MAY 30, 1988 Rs. 1.50

NDHRA PRADESH OPEN UNIVERSITY
SECOND ANNU CONVOCATION
APR 30. 8.

Second Convocation of the Andhra Pradesh Open University. (From L to R) : Prof. K. Satchidananda Murty, Vice-Chairman, UGC, who delivered the convocation address, Smt. Kumudben Joshi, Governor of Andhra Pradesh and Prof. C. Narayana Reddy, Vice-Chancellor of the University.

SCHOOL OF PLANNING AND ARCHITECTURE

(Deemed to be a University)

4-BLOCK-B, INDRAPRASTHA ESTATE, NEW DELHI-110 002

APPLICATIONS ARE INVITED FOR ADMISSION TO ACADEMIC PROGRAMMES FOR THE SESSION 1988-89

A. Bachelor of Architecture Programme

Architecture (5 Years), Full-Time, 68 Seats.

Admission Qualifications

Pass in Senior School Certificate Examination (on completion of the 10+2 pattern, 12 Year Course) of Central Board of Secondary Education, New Delhi or any other examination recognised as equivalent with

(a) General Science including Chemistry at the 10th Stage.

(b) 60 percent of the aggregate marks or more in English (core or optional), Physics, Mathematics and any other optional subject where the candidate has secured maximum marks at the 10+2 stage.

For candidates belonging to : (i) Scheduled Caste, (ii) Scheduled Tribes, (iii) Children/Widows of Armed Personnel killed/disabled in action during hostilities, (iv) Physically Handicapped, with 55 percent or more of the aggregate marks as in (b) above.

Selection Procedure:—Selection for admission to the Bachelor of Architecture Programme will be made through an Entrance Examination comprising (i) General Awareness and Scholastic Performance Test and (ii) Aptitude Test—to be held on 9th July, 1988 at School of Planning and Architecture, New Delhi, and at other Selected Centres in Delhi.

Reserved Seats:—SC-15 percent, ST-7½ percent, Children/Widows of Armed Personnel killed/disabled in action-5 percent, Physically handicapped-5 percent, and candidates belonging to educationally deficient States-10 percent of the total sanctioned intake.

General Information;—(i) Medium of Entrance Examination and instruction is English. (ii) Foreign nationals are required to apply to the Government of India through their diplomatic channels.

B. Master's Programmes (3 Semesters) In:

(i) **Planning** with specialisation in Urban Planning, Regional Planning, Transport Planning, and Housing (Open to Architects/Engineers/Social Scientists).

(ii) **Building Engineering and Management** (Open to Engineers/Architects).

(iii) **Architecture** with specialisation in (i) Urban Design (ii) Architectural Conservation (Open to Architects).

(iv) **Landscape Architecture** (Open to Architects/Landscape Architects/Town and Country Planners).

C. Pre-Landscape Architecture (2 Semesters) with Scholarship of Rs. 600/-p.m.

This is a preparatory Course which enables admission to the Master's Programme in Landscape Architecture to Candidates having Master's qualification in Agriculture/Horticulture/Forestry/Botany/Ecology/Geography.

Eligibility: With Scholarship of Rs. 1000/- per month for Master's Programmes.

(a) Candidates having Architecture/Engineering background must have valid GATE SCORE.

(b) Candidates with Social Science background must have qualified in the U.G.C. (NET) examination.

Note: Candidates with 60% of the aggregate marks or more at the qualifying examination and who have not qualified in GATE/U.G.C. (NET) examination are eligible to apply for admission without Scholarship.

Candidates who are awaiting the results of the qualifying examination are also eligible to apply provided they complete the admission requirements by 4th July, 1988.

Sponsored Candidates: 25% of the sanctioned intake in case of Master's Programme in Building Engineering and Management and 50% in respect of other courses are open to candidates sponsored by Central Government, State Government, Statutory Organisations as well as public institutions.

Reservation of Seats: Five percent of the sanctioned intake is reserved for SC/ST candidates. Seats are also reserved for candidates sponsored by the Central/State Governments, Statutory Organisations as well as Institutions.

Selection Criteria: Selection of the candidates shall be made on the basis of the performance of the candidates at the interview. Candidates appearing for interview scheduled to be held on 4th, 5th & 6th July, 1988 will be reimbursed one way second class railway fare by the shortest route.

Foreign Nationals: Foreign nationals are required to apply to the Government of India through their diplomatic channels.

Important Dates

Bachelor's, Master's Programmes

I (i) Issue of Application Forms commences:	
(a) **UCO Bank Branches at Delhi**— I.I P.A. Extension Counter (I.P. Estate), Defence Colony, Shahdara, Mukherjee Nagar and Mayapuri against payment of Rs. 30/- in cash. (During Banking Hours only)	**30.5.1988**
(b) By post from School only against payment of Rs. 30/- by D.D. on SBI/UCO Bank in favour of School of Planning and Architecture, payable at New Delhi.	**30.5.1988**
(ii) Last date for issue of Application Forms by post from the School	**20.6.1988**
II. Last date for issue of Application Forms from UCO Bank Branches	**24 6.1988**
III. Last Date for receipt of Application Forms by the School (by Regd. Post)	**27 6.1988**

UNIVERSITY NEWS

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Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association.

Editor :
SUTINDER SINGH

Continuing Education with Special Reference to Science & Technology*

P. N. Srivastava**

In the history of mankind, education has formed a continuum and a basis for the development of human society. Through development of attitudes, values, capabilities both of knowledge and skills, education provides strength and resilience to people to respond to changing situations and enables them to cause and contribute to societal development. It is only education that can imbue people with the knowledge, the sense of purpose and confidence essential for building a dynamic, vibrant and cohesive society capable of providing its people with the wherewithal for creating better, fuller and more purposeful life.

Higher education is meant to provide ideas and men to sustain development of any nation or society. No programme of high quality education can be implemented if the faculty themselves are not creative or are devoid of the excitement of innovation. With the explosion of knowledge, change of curricula etc. will have to remain to be very frequent. A teacher himself will have to remain a student to be up-to-date for which he will have to learn continuously. In science and technology things are developing and changing very fast and if a person does not resort to continuing education, he will be no where within no time.

It is very hard for developing countries in particular that even before they could cope up with the first industrial revolution of the nineteenth century variety, they were forced with the challenges of chemical technology, followed by micro-chip technology, biotechnology and the forthcoming technology of superconductors. The task has become very difficult because there has been a tremendous shortening of the time between the development of an idea and its useful application industrially. The time lag between the development of the principles underlying the combustion engine and their application in automobiles was relatively long. The time lag between the publication of Einstein's papers (1905) and the development of atomic energy was about four decades. But the period required for the advancement of electronic computing from idea into a major industry has been much shorter. Scientific principles and ideas are now moving to useful applications in only a few years and to product manufacture in only a few years more. It was only 14 years back that Stanley Cohen and Herbert Boyer, the Californian scientists, discovered restriction enzymes to cut the DNA and DNA ligase to join them in 1973 and we have already produced industrially Humulin (to replace insulin), human growth factor, several interferons, monoclonal antibodies in the market for a few years now. At the moment, biotechnology is being presented as potential cornucopia and the individual countries must provide backing to compete and to stay competitive. The possibilities which will be practical within a few decades in the area of health and medicine; food and agriculture; energy; raw materials; chemicals and environmental management are unlimited and unbelievable.

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During the last ten years or so, the entry of computers into the ordinary house in developed countries has sustained one of the fastest growing consumer markets. Their use is limitless. They replace the telephone directory, give scientific, political, business, sports information, etc. You ask for any information and the computer will provide the data. All these applications arise from extremely low cost of microprocessors—electronic circuits providing in a tiny volume, the basic logical functions of a computer. The processing power of these components is constantly being increased, while at the same time their cost and size plunge down. Today we see before us the information revolution and the coming of an information society. Information and communication technology make it possible to strengthen man's intellectual ability in a way that other revolutions could not accomplish. In the years to come, however, software will prove to be an even more important problem. Software is in effect "intangible material" and software technology will be crucially important to information revolution. The maxim, "Those who dominate materials, dominate the technology" is being changed to "Those who dominate software will dominate the world".

It is hard to believe but it is true that it has been only a year and a half that we first heard news of the startling breakthrough in superconductivity by two German scientists (Bednorz, J.G. and Muller, K.A.) working in the IBM's laboratories in Zurich. It is extremely rare for the Nobel Committee to recognise the event so fast and award the Nobel Prize to the two scientists within one year of their achievement. Breakthroughs in superconductivity bring us up to the threshold of a new age. We must recognize that recent breakthroughs in superconductivity have outrun existing theories and brought us to the threshold of a new world of opportunities. The world around us is in the process of a radical transformation, a revolution of shattered paradigms and long-held certainties. This transformation is opening for us new horizons of possibility. Some future superconductor applications include ultrafast shoe-box size computers; smaller and cheaper medical scanners and magnetic resonance imaging machines; sensors to analyse the Earth's magnetic field to find oil and mineral deposits: magnetic "bottles" that store electricity indefinitely; power lines that transmit electricity with no loss of energy (conventional loss of energy being upto 25 per cent); high-speed trains being levitated above the tracks etc.

We are increasingly moving, and moving faster and faster from an age of things to an age of thoughts, an age of mind over matter. In this new age, it is the mind of man, free to invent, free to experiment, free to dream, that is our most precious resource. The value of a silicon chip does not lie in the sand from which it comes, but it is in the microscopic architecture engraved upon it by ingenious human minds. The most promising superconductors are made from ceramics—their value does not come from their material, but from the brilliant inspiration of a few scientists. It is human imagination that is going to build the 21st century out of sand and clay.

The world of tomorrow, which would usher in an information-rich and technology-intensive society calls for new approaches to learning. Developing the capacity to learn would be more important than what is learnt. Life-long and recurrent education will have to be the order of the day. Herein lies true importance of continuing education which will have to play a greater and more important a role in future. It is rather unfortunate that most of the universities have not yet realised the intensity of its importance and that is why perhaps greater attention is not being paid to this. The facilities for continuing education will have to be provided for working personnel in most of the universities and technical institutions. At present they are almost non-existent.

For continuing education communication technology will have to be profitably used for instructional purposes. The development of new softwares will also have to be very fast which should compare well with the fast developments in Science and Technology. It has already been demonstrated that given a reasonably favourable situation, people will learn from any medium—television, radio, programmed instruction, film strips, tape recording or others. In general the things that control the amount of learning from the teacher face-to-face also control the amount of learning from educational media. What is necessary and important is individual abilities and motivation to learn. Choice of instructional media, therefore, depends on socio-economic and geographical factors, accessibility, convenience, etc. of the students.

In this respect universities which have better facilities have to help and assist universities which lack them. Similarly, universities of the developed and advanced countries should assist others in the developing and less advanced countries. It is imperative that cooperation at least amongst the universities of Com-

(*Continued on page 7*)

Individual, Society and Citizenship Development

G.B.K. Hooja*

Man and Environment

The relationship of the individual and environment (which includes society) is best described in the Pursha Sookta of the Atharva Veda as follows :

> *Mattra bhoomi, putroham prithivyaah*
> (Land is my mother; I am the son of Earth)

In other words, it means that man is the creature of his environment. He is created by his environment; he is sustained and nourished by his immediate family and surroundings; however, as he grows and gains strength and self-confidence, he is in a position to strike on his own and to charter his own path. Nevertheless, his past clings to him and determines the parameters of his evolution. The geo-political setting and the socio-economic environment in which a child is born and grows up have a life long influence on his career and track record.

According to Arnold Toynbee, environment is a relative term. It implies the existence, the presence, and the action of some other party. This other party is some living creature, and the environment of every living creature is, the sum total of the rest of the universe. For instance, a human being's environment consists of the whole of non-human Nature, both inanimate and animate, together with all his fellow human beings (including the dead as well as the living). Above all, a person's environment includes the human nature of the person himself. Toynbee hits the nail on the head, and is in line with the ancient seers of India, when he adds that this last-mentioned constituent of a human being's environment—the internal spiritual constituent—is the key to the person's relations with all the rest of his constituents: for if a human being fails to master Nature within himself, he will fall to master it in the rest of the Universe that lies outside him. He may understand all mysteries and all knowledge, but the most highly accomplished technical expertise will gain him nothing if he is not also in command of himself. In Man he goes on to say, the decisive factor—the factor that tips the balance either towards success or towards failure—is not race, and it is neither skill either, it is the spirit in which Man responds to the challenge of the sum total of Nature that has become Man's environment as a result of Man's own appearance in the Universe. This sum total includes the nature of Man himself, as exemplified in Homo sapiens and in the individual representatives of this species—that is to say in particular persons.

Man and Society

Man is a gregarious animal. He habitually moves in flocks and herds and seeks to form communities/societies of like-minded persons for it provides him with a sense of security and well-being. Thus man and society are coeval and they evolve a set of social values and a code of conduct which binds them together. Situations, however, arise in which restrictions become unbearable and this leads to disharmony, rebellion or recession.

Toynbee defines society as the total network of relations between human beings. Thus components of society are not human beings, but relations between them. In a social structure, individuals are merely the foci in the network of relationships. He points out that the famous frontis piece of Hobbes's Leivathan, displaying society as a gigantic human figure composed of a multitude of life-sized human figures is an anthropomorphic misrepresentation of reality. A visible and palpable collection of people is just a crowd: it is not a society.

MacIver also endorses this view and holds that a society is 'a system of usages and procedures, of authority and mutual aid, of many groupings and divisions, of controls of human behaviour and liberties'. Thus a society is a group or an association of people bound by some common purposes, common values, common frame of references, certain well-defined relationships. Their activities supplement each other's activities, the whole constitution a vital mechanism.

Generally, people living together are said to live in a society or a community and these two words are often used loosely in almost the same sense. But there is a clear distinction between them which arises from the type and degree of organisation in the group and the extent to which the people are conscious of their social mode of life. A community denotes a

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body of people living in the same place under the same conditions, while society is a particular type of community. The latter includes everybody, adults and children, social and non-social persons, living in a certain territory where all share a mode of life but not all are conscious of its organisation of purpose. On the other hand, a society is a kind of community (or a part of a community) where members have become socially conscious of their mode of life and are united by a common set of aims and values. Thus a society may be defined as a group of persons who have come together with a common purpose and who are conscious of this purpose and work for its fulfilment. In this category fall a family, a church, a school, an association of individuals in a co-operative or a corporation, a state comprising of citizens bound by a common objective and a common set of rules and regulations governing their conduct and mutual behaviour. This implies privileges and obligations, rights and duties.

In the course of history, with the gradual development of the means of transportation and communication, societies have come to function in ever-widening and expanding circles of influence. The clans, the tribes and congeries of tribes, as we know, have yielded place to, or are in the process of yielding place to nation states or associations of nation states in the political field or multinational corporations in the economic field. There is a greater give and take and mutual sharing of ideas in the cultural and religious spheres too; and the wide world is in a state of flux and ferment as never before. Societies are breaking their protective/insulating shells and are advancing towards the evolution of a universal state. The big wide world has now become almost a global village; and man is poised for a leap into the stars beyond. He has already stepped on the moon, which no longer remains an object of poetic wonder or metaphysical fantasy. All this has been attained by the cooperative endeavour of seekers of Truth, inspired researchers in fields and laboratories and the spirited men of adventure, operating in various corners of the globe, transcending differences of class, creed, caste, community or colour. The common bond which binds them is the bug of curiosity, the urge and the courage to know and the daring to do.

Of course, over the millennia, the journey has been tortuous, and there is no reason to hold that the worst is over and it shall be smooth sailing hereafter.

Role of Creative Personalities

Toynbee, who has made a life-long study of civilisations, their growths, breakdowns, and disintegrations, finds that in a general way, a society in the process of civilisation articulates itself through the individual human beings who 'belong' to the society, or to whom the society 'belongs'. Society itself, as we have noted earlier, is not a collection of persons but is a network of relations; it is the field of interaction of two or more agents. It is not itself the source of social action, for a source is **ex hypothesi** other than a field. A society is a medium of communication through which human beings interact with each other, and it is human individuals and not human societies that 'make' history.

From this, it is but a short step to Bergson's **elan vital** or Carlyle's Heroes. These are the souls who feel obliged to work under the impulse of internal necessity to set the imprint of their **elan** upon their fellow men, to transfigure them by converting them to their own insights. Such individuals who influence/transform societies in which they arise are, as Toynbee observes, superhuman in a very literal sense, for they have attained a supreme self-mastery which manifests itself in a rare power of self-determination. The emergence of a creative personality of this kind whether the Buddha, the Christ or the Mohammad in the religious field or a Lenin, a Gandhi or a Hitler in the political arena inevitably precipitates a social conflict, as society struggles to cope with the disequilibrium produced by his creative energy.

Mimesis, too, is a generic feature of social life. In static societies, it is directed towards the older generation of the living members and also towards the dead ancestors, who stand unseen but not unfelt, at the back of living elders, reinforcing their power and prestige. In dynamic societies, in the process of growth, however, mimesis is directed towards creative personalities which command a following because they are pioneers on the road towards the common goal of human endeavours. History is evidence that static societies, thus dominated by the shadow of custom, tend to degenerate, while dynamic societies, motivated by the spirit of change and modernity and aided by expanding knowledge, scientific discoveries and advanced technology surge forward into uncharted areas of action.

Role of Education

It is in this perspective that the value and role of education for the common man, as well as the leaders of society has to be assessed. **Yena gataah mahaajanaah sa panthaa**—the path traversed by the leader is the path—is an old saying. At the same time, it is equally true that a people get a government which they deserve. The rulers and the ruled interact on each other, and tend to balance and counter-balance each other's decisions and actions. Hence the necessity of informed and enlightened citizenry. More so, in a democratic set-up, where the levers of government finally rest in the electorate. As pointed out by the international Commission for development of Education, there is a close correlation, simultaneous and delayed, between changes in the socio-economic environment and the structures and forms of action of education, which makes a functional contribution to historical movements. Thus through the knowledge it provides of the environment in which it operates, education seeks to held society to become aware of its problems, and, provided that efforts are centred on training 'complete men' who will consciously seek their individual and collective emancipation, it should greatly contribute to changing and humanising societies. The word to mark here is, 'humanising'. Change is the law of nature. Individuals as well as societies continue to change, for better or worse, as Time flows past. What is desirable is that change should be informed by humanising and not cannibalistic mores and values.

Humanising Values

We may now consider what are these "humanising" values and how they may be acquired.

In his scholarly and very illuminating treatise on integral Education—Thought and Practice, R N Pani has drawn attention to a list of 84 social, moral and spiritual values, prepared by the National Council of Educational Research and Training in alphabetical order. It is based on the recommendations of numerous Commissions and Committees on Education and a study of Gandhian literature, and is given at the end of this paper. It will be seen that it is a very formidable and fairly exhaustive list and it would be difficult to improve on it. Broadly, these values may be classified as mutual aid, team spirit, cooperation, courtesy, due consideration for others, discipline, dutifulness, good manners, honesty, courage, and perseverance. In fact, these values may be categorised as perennial values which have never fallen forward looking development oriented, progressive societies.

Faced with the challenge of foreign domination, Gandhiji set out to mould his people into an army of disciplined *satyagrahis* (soldiers of Truth). He established an **ashrama**, a retreat-cum-training centre at Sabarmati, near Ahmedabad; and later shifted it to Wardha. He expected the inmates of his *aashrama* to observe eleven vows, namely, truth, non-violence, celibacy, non-theft, non-acquisition, body-labour, control of the palate. fearlessness, equal respect for all religions, *swadeshi* and refusal to treat anybody as untouchable. He enjoined upon the *aashramites* to clean the *aashrama* latrines. He held the view that private morality had public consequences and, therefore, stressed the importance of 'inner' over the 'external' restraints of persons in positions of authority, relying upon ethical sanctions to guarantee public obligations. Satyavadi Harishchandra was his model.

When Gandhiji spoke of political goal of *Swarajya*, he clearly meant that only those who could rule themselves in the sense of self-restraint, could rule themselves in the sense of controlling the political apparatus. He metamorphosed the Indian nation.

The mantle of Gandhiji would seem to have fallen on the 73-year old Jain saint, Acharya Tulsi. 36 years ago, he launched a self-improvement movement, called the *Anuvrata Aandolana*. He calls upon his followers, and indeed on all others who may, to undertake to observe eleven small vows as follows :

1. I shall not kill any innocent being.
2. I shall not attack anyone. I shall not support aggressive policies. I shall work for world peace and disarmament.
3. I shall not participate in violent agitations, nor in destructive activities.
4. I shall repose faith in human integrity. I shall not discriminate against anyone on the ground of caste, colour, etc., nor deem anyone to be untouchable.
5. I shall observe religious tolerance; and shall not generate communal tension.
6. I shall observe rectitude in my business and conduct.
7. I shall try to inculcate celibacy and self-restraint.
8. I shall not indulge in unethical practices in elections.
9. I shall give no quarter to social evils.
10. I shall not consume intoxicants like liquors, **ganja**, heroin, etc.
11. I shall shun evil and shall be alert in regard to environment.

Simple vows and a practical code of conduct.

As a matter of fact, these vows flow from the rules of conduct prescribed for the practitioners of Patanjaliyoga, namely, *5 yamaas*, and *5 niyamas*. The 5 *yamas* are rules of social conduct. These are : Truth, Non-violence, celibecy, non-theft, non-acquisition. Non-violence includes non-hurt by deed, speech or even thought. Non-theft means not only non-stealing, but also includes punctuality, non-absence from work and duty payment of due taxes, in short, non-cheating of any kind. Non-acquisition would mean curbing the acquisitive tendencies, non-accumulation of excessive wealth, a spirit of charity, fellow-feeling and holding of wealth as a trustee on behalf of the have-nots, as expounded by Gandhiji. The 5 *niyamas* are rules of personal conduct. These are : Cleanliness, austerity, self-study, contentment, and self-surrender. Gandhiji lay great emphasis on cleanliness, which according to him covered physical, moral and financial cleanliness both in the personal and social fields. He abhorred pollution of any kind. He worried a good deal about accounting for the public funds with which he was entrusted. "People never cared to have receipts for the amounts they paid, but we always insisted on the receipts being given. Every pie was thus accounted for and I dare say the account books for the year 1894 can be found intact even today", wrote Gandhi about his days in Natal. A story is told that when Gandhi established his Sabarmati *Aashrama*, he placed Manilal, his second son, in charge of the *aashrama* funds. When Manilal heard that Harilal, the unhappy first son, was without money in Calcutta, he borrowed money from the *aashrama* to forward to his brother. Gandhi's discovery of the irregularity led to his banishing Manilal from the *aashrama* It is on record that when Gandhi found insanitary conditions prevailing at a Congress session, he organised a scavenging squad, and set about the task with great aplomb. Self-study also does not mean merely study by oneself, but also study of good, healthy literature and study of self. In the ultimate analysis, knowledge of and watch over self is the key to all progress, individual or in the aggregate, according to these savants.

Human Resource Development

Every generation has a new set of problems to face; of course, the genesis of most of them may be traceable to historical reasons; nevertheless, they have to be tackled, and in good time; otherwise the consequences may be unpalatable. The ultimate weapon, in any struggle, however, is the man behind the machine; and it is, therefore, heartening to note that the Government of India has rechristened the Ministry of Education as the Ministry of Human Resource Development to lay the focus of emphasis clearly and unmistakably on the development of the people, the citizenry. A skillful, competent, devoted and patriotic workforce is the *sina qua non* of success in every endeavour.

India today is faced with many problems. To name a few, 2/3rd of population is illiterate; 1/3rd of population is living below the poverty line; and to it, large-scale unemployment and under-employment population explosion, low per capita income (notwithstanding leap in agricultural and industrial productivity) threat of national disintegration, environmental degradation, fall in ethical standards, degeneration of socio-political institutions, and we have a handful of agenda.

Citizenship Development Society

Our best hope rests on human resource development, based on a multi-faceted programme of education, at the kernel of which would be all-round, integral, man-making, citizenship education. It is in this context that the importance of organisations like the Citizenship Development Society emerges. This society can act as a catalytic agent, as a centre for research in the art and science of citizenship and as a resource bank for collection and dissemination of relevant material on this critical issue. As a voluntary agency and pressure group, it is bound to exercise healthy, modernising influence on governmental, semi-governmental and other autonomous agencies engaged in the nation-building task of value-oriened education, as it gathers strength and expertise. It can run a training/orientation course in citizenship for persons in various walks of life and to set up a Training and Orientation Centre for this purpose. The Society can help develop course material for various categories of trainees/participants. Association of universities and other educational institutions is bound to give strength to the Society for indeed all educational institutions are the reservoirs of youthful energy and spring boards for a dynamic nation's ever lasting quest for onward march towards a better future.

SOCIAL, MORAL AND SPIRITUAL VALUES

1. Abstinence
2. Appreciation of cultural values of others
3. Anti-untouchability
4. Citizenship
5. Consideration for others
6. Concern for others

7. Cooperation
8. Cleanliness
9. Compassion
10. Common cause
11. Common good
12. Courage
13. Courtesy
14. Curiosity
15. Democratic decision-making
16. Devotion
17. Dignity of the individual
18. Dignity of manual work
19. Duty
20. Discipline
21. Endurance
22. Equality
23. Friendship
24. Faithfulness
25. Fellow-feeling
26. Freedom
27. Forward look
28. Good manners
29. Gentlemanliness
30. Gratitude
31. Honesty
32. Helpfulness
33. Humanism
34. Hygienic living
35. Initiative
36. Integrity
37. Justice
38. Kindness
39. Kindness to animals
40. Loyality to duty
41. Leadership
42. National unity
43. National consciousness
44. Non-violence
45. National integration
46. Obedience
47. Peace
48. Proper utilisation of time
49. Punctuality
50. Patriotism
51. Purity
52. Quest for knowledge
53. Resourcefulness
54. Regularity
55. Respect for others
56. Reverence for old age
57. Sincerity
58. Simple living
59. Social justice
60. Self-discipline
61. Self-help
62. Self-respect
63. Self-confidence
64. Self-support
65. Self-study
66. Self-reliance
67. Self-control
68. Self-restraint
69. Social service
70. Solidarity of mankind
71. Sense of social responsibility
72. Sense of discrimination between good and bad
73. Socialism
74. Sympathy
75. Secularism and respect for all religions
76. Simple living
77. Spirit of enquiry
78. Team work
79. Team spirit
80. Truthfulness
81. Tolerance
82. Universal truth
83. Universal love
84. Value for national and civic property

Continuing Education with Special Reference to Science & Technology

(*Continued from Page 2*)

monwealth countries should be started, earlier the better.

It is very timely and heartening that one of the decisions taken at the last Vancouver (Canada) summit of the Commonwealth Heads of the States was to set up a Commonwealth University and College Network for promoting Distance Education cooperation among Commonwealth countries. This decision is based on the Lord Briggs Committee appointed in 1985. The University envisaged by the Expert Committee was not a degree-giving institution, it was in the form of a resource centre for Distance Education Institutions throughout the Commonwealth facilitating exchange of programmes, transfer of students, mutual recognition, etc. The offer made by Government of Canada is to set up a Network which may in course of time become the University of the Commonwealth for cooperation in Distance Education. It may also be desirable to develop linkages with the U.N. University in Japan. The proposed Network will have its headquarters in Canada with various regional units in Britain, the Mediterranean, the Caribbean, Eastern and South Africa, West Africa, South Asia and the Pacific, etc. Canada has already offered funds to the extent of £ 2 million towards capital cost and an additional £ 4 million towards recurring cost over a period of five years. India too has offered £ 1 million and Nigeria £ 1.5 million over a five year period. Additional funding is expected from other Commonwealth countries such as Britain, Australia, New Zealand and other countries from Africa and West Indies. It is a development in the right direction and the Association of Commonwealth Universities should make the best use of it. □

A Common Learning Society

Prof. K. Satchidananda Murty, Vice-Chairman, University Grants Commission, gave a fervent call for the emergence of a common learning society. He said, "Aware of what man's existence is in the social and natural world today and foreseeing as it will be tomorrow, education, whether formal, non-formal or informal, should now enable all to acquire and enhance enlightenment in the different stages and spheres of life". Prof. Murty was delivering the Convocation Address at the 2nd Annual Convocation of the Andhra Pradesh Open University. Excerpts

Convocation

Our National Open University, this pioneering State Open University and others like it established subsequently may continue to provide distance education at various levels, applying a multi-media approach during the entire learning process, based on the planning, guidance and tuition of a number of academics. In addition to this, it may be appropriate for them as well as all concerned with education in our country not only to be aware of, among others, ideas subsumed under the rubric Lifelong Education, but to attempt to implement them insofar as they are found acceptable and good. One need not exclusively and for ever depend on John Dewey, Paulo Freire and Ivan Illich, nor even on Tagore and Gandhi, or on Radhakrishnan and Zakir Hussain, in the formulation of educational ideals and practices. No mortal is omniscient and infallible, and there can be no policies and programmes which are perfect and immutably correct. Practical wisdom is often the result of a heated and direct clash of many different viewpoints.

The idea of a permanent, free and continuing education is as old as Plato. The important thing now is to make it universally accessible. The world around is changing rapidly, thereby affecting men's relationship with it. Consequently, men do not know how to maintain harmony within themselves, with others and with nature, as the atrophied and unsuitable education systems in vogue are unable to show them ways of transcending changes and leading whole lives. The need is to equip men individually and collectively to understand, control and dominate politico-economic development as well as technological progress. Aware of what man's existence is in the social and natural world today and foreseeing as it will be tomorrow, education, whether formal, non-formal or informal, should now enable all to acquire and enhance enlightenment in the different stages and spheres of life. It is not mere extension of education that is required, but its qualitative transformation. It is not enough to learn how to earn; it is necessary to learn how to learn as long as one lives.

Learn to be what and to do what, and how? This should be through all possible methods and techniques which will engender in all unquenchable thirst for more and more knowledge not for accumulation, but for integration, deriving satisfaction only in perpetual inquiry and discovery, with a view to enrichment of life. This means a democratic and lifelong education, through contacts with reality, which will develop individual autonomy as well as potentiality for cooperative and harmonious living. It should result at least in the increasing awareness of human unity, if not of the unity of all existence, and in the enhancement of the quality of life of both individuals and their collectives.

It should be suffused with a concern for the needs of the disadvantaged, oppressed, excluded or exploited groups. The gulf between the cultures of the landless labourers and industrial workers, and the disparity between the rural and urban people, and such other contradictions, should be overcome: the best type of education must be available to all. Whatever comes in the way of this—division of labour, specialisation, dependence, alienation and corporate subservience to economic systems, must be done away with.

For achieving what has been indicated above, the available material and human resources as well as the accumulated cultural experience of mankind must be organized so that everyone throughout his life continues to develop his capacities in order that he may first of all achieve inner harmony and contribute to the well-being and development of the nation of which he is a citizen, as well as of the universal Human Society of which too he is a member.

Apart from the usual type of universities, with or without correspondence courses, and open universities, there are a number of informal agencies that shape every society's thought, character and sensibility. For example, the family is an important agency through which a culture transmits itself across generations. Similarly, churches or religious orders, museums, radio and newspapers also educate people in different ways. In every case it is possible that education is socially controlling, manipulative or tranquilizing. So care must be taken that nonformalisation, vocationalisation or any such innovation would not result in differential education and categorization of recipients of education. Unless there is an effort to have common objectives and to have coordination of different methods to achieve them, there will not emerge a common learning society. This implies that people who receive non-formal education and formal education, and those who graduate from different sorts of universities (universities like Madras, "rural universities" or "Sanskrit/Telugu universities") and from institute of science/technology, should share a common worldview, if their thinking and action have to contribute to the harmonious development of individuals and the nation. One is not certain that this is being taken care of now; but it is important that this should be done if a common national consciousness is considered desirable. ☐

Indian Music Congress

The Indian Music Congress (IMC) patterned after the Indian History Congress and the Indian Science Congress was formally inaugurated recently. The objectives of the IMC are to work for the creative development of South Asian including Indian music both in its musico-academic and performing aspects; foster the aesthetic and scientific study of and research in such music and promote its perceptive cultivation on the basis of the much-needed dialectical unity of theory and practice; campaign for the adoption of a comprehensive national policy on music education beginning with the kindergarten stage; safeguard and promote the professional interests of musicians, music teachers and others involved in the work of music production; publish the transactions of the IMC's annual Congress and other conferences as well as works of significant value including recording good music in tapes, discs and cassettes; work for the preservation of valuable recorded music; interact with foreign organizations of like nature; in short, work for the promotion of such conditions as are conducive to the creative development and all-sided dissemination of Indian music.

Dr. Mahamahopadhyay R. Sathyanarayana of Mysore, who delivered the Inaugural Address, briefly analyzed the objectives of IMC and dwelt upon several interconnected themes—the role of music in building bridges between man and man, overthrowing the man-made divisive forces of caste, class and community; the task that has befallen Indian musicians to formulate the problems of their own music including the problems of music education; and the need for collective self-reliance on the part of Indian musicians. Once the musicians and music educators are united for the cause of creative music, no agency, governmental or otherwise, would be in a position to ignore the many requirements of Indian music and the Indian musicians.

On this occasion a seminar on Problems of Formal Music Education in India Today was also organised. Ms. Jayasri Banerjee, Secretary of the IMC, invited the attention of the participants to the urgent need of finding a viable alternative to the *gurukula* system of music instruction which has almost broken down due to reasons of history and wondered whether the *conservatory* style of music education, with some

10 JUN 1988
C.T.R.I. MYSORE

Communication

Dear Sir,

I am subscribing to 'University News' to see advertisements for the last two years. It is becoming increasingly difficult to apply and costlier. Can the A.I.U. recommend to the U.G.C. to tell all Universities to have a uniform prescribed application form ? Some Universities ask for application on plain paper while others have a simple format but insist on **8 copies** together with all sorts of enclosures for **every application.** Added to this, there are universities that will accept only Bank Drafts, others M.O. or D.D. and still others cheques also. Most Post Offices do not have Postal Orders of the desired denominations. Will the A.I.U. please endeavour to simplify all these ?

The aim should be to enable speedy application without straining too much on the pocket and time of the applicant. I suggest A.I.U. supplies 'Application formats' together with 'Fee-coupons' which unemployed aspirants can buy and use as and when required. For the time being A.I.U. could at least provide application formats, without having to be 8 copies.

Yours etc.

(Dr.) V. Subramoniam
B-1/14 Mahavir Shikhar
LBS Marg,
BOMBAY-400080

necessary modifications to suit the Indian musical milieu, cannot provide the major answer. She also stressed the urgent need to clearly formulate the *principles* of a scientific *methodology* of teaching Indian music, especially Indian classical music.

Several papers were presented at the Seminar. Dr. (Ms.) Subhadra Chaudhary of Indira Kala Sangit Visvavidyalay, Khairagarh, argued for an ecclectic synthesis of the best elements of the *gurukula*, institutional and textual traditions in restructuring the system of our music education. Ms. Sudha Srivastava, Principal, Savitri Girls College, Ajmer, stressed the importance of evolving a uniform national policy to ensure academic and performing excellence growing out of intellectual, critical and creative efforts in music education. Dr. Chintamani Rath of Rabindra-Bharati University drew attention to the cognitive, affective and psychomotor behaviour in the learning process and made out a strong case for promoting the four major aspects of music education, namely performance, composing, musicology and criticism. Ms. Tatyana Morozova of the USSR spoke of the need for inter-cultural diffusion of music. Professor R. Visweswaran of Mysore University and Professor Debu Chaudhuri, Dean of Music & Fine Arts, Delhi University dealt with certain immediate problems of music education-and suggested some remedial measures.

In his concluding remarks Dr. R. Sathyanarayana, suggested a broad-based and inclusive approach to the problems of formal music education, bringing into bold relief the need for establishinga viable infrastructure especially at the lower rungs of the educational ladder. He underlined the importance of evolving a comprehensive policy of music education at the national level, for the primary objective of music education is the pursuit of excellence, both in music and in life.

The IMC proposes to organize its first three-day annaul Congress this winter at the University of Delhi to consider, among others, the problems confronting the state of music and musicians and the state of music education in the country.

The IMC's first Executive Committee (1988-89) consists of 20 members with the following office bearers :

President : Dr. R. Sathyanarayana, Director, Regional Centre for R & D at Mysore, Karnataka Sangita Nritya Academy;

Vice-President : Professor Debu Chaudhuri, Dean, Faculty of Music & Fine Arts, Delhi University;

Secretary : Ms. Jayasri Banerjee, Padmaja Naidu College of Music, Rajbati Campus, Burdwan University; and

Treasurer : Professor Ramakanta Chakrabarty, Department of History, Burdwan University. ☐

KARNATAK UNIVERSITY, DHARWAD

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DIRECTOR
PRASARANGA
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National Seminar on Juvenile Delinquency in India

A National Seminar on Juvenile Delinquency in India—The Problem, Legal Aspects and Remedies was held on April 23-24, 1988 in Nanakchand Anglo Sanskrit College, Meerut under COHSSIP Scheme of U.G.C. The Seminar was inaugurated by Hon'ble Justice D.A. Desai, Chairman, Law Commission of India, while Sri Vijay Sharma, I.A.S., District Magistrate, Meerut presided. Dr. R. B. L. Goswami, Vice-Chancellor of Meerut University also addressed the inaugural session.

The Seminar was divided into four sessions and the topics discussed inciuded Juvenile Delinquency in historical perspective; Incidence of Juvenile Delinquency in India: Causes and the Magnitude of the Problem; Legislative Measures and Juvenile Justice; and Remedial Measures: Preventive and correctional.

In his inaugural address Justice Desai said that mere legislation on Juvenile Delinquency was not sufficient. There must be general awareness to tackle this problem. The fundamental reasons for Juvenile Delinquency are functionally inadequate family atmosphere, illiteracy, defective juvenile laws and their implementation, economic disparity and polluted social environment. He insisted that a psychological viewpoint be adopted towards juveniles to know why a child commits offence? Only then we can successfully eradicate the evil of juvenile delinquency.

Sri Vijay Sharma, also opined that inadequate family background particularly breakdown of joint families, inadequate education, child labour, problems of farmers in villages, poverty, T.V. Programmes and films were some of the causes for increasing juvenile delinquency. The problem in India differs from what it is in U.S.A. and other western countries. Social atmosphere should be taken into consideration while dealing with the problem of juvenile delinquency.

Dr. R.B.L. Goswami, considering the tensions spreading in the social atmosphere as basic cause for Juvenile Deliequency said that till the inequalities existed in the society it was not possible to control juvenile delinqnency.

Dr. S.C. Sharma, Principal of the college, observed that teachers are neither judges nor policemen. Like a parent, teacher should try his utmost to reform a delinquent student by understanding his socio-psychological needs.

It was felt at the Seminar that the new legislation, The Juvenile Justice Act, 1986 was a distinct improvement in so far it provided for uniformity all over the country, time bound investigation and justice and public participation. But still a deep insight into the real and basic causes and remedies of the problem were called for. The problem has to be tackled sociologically, psychologically and economically in a multi dimensional manner. The basic factors responsible for Juvenile Delinquency must be eliminated. The Juveniles should be looked after and treated properly within 2-3 years from the first detection of the delinquency. When they commit some deliquent acts they must be diagnosed and treated like a patient and be cured with love, sympathy and humanity. A joint effort of family, school, community and state is needed in this direction. Teachers, of course, can play a very positive role as they are not only socialising agents of the future generation but are also its guardians.

About 100 delegates from Jammu and Kashmir, Punjab, Himachal Pradesh, Haryana, Rajasthan, Maharashtra, Madya Pradesh, Orissa, Pondicherry, Uttar Pradesh, and Delhi participated. Narly 40 papers were presented at the seminar.

Bhavnagar Varsity Holds First Convocation

The first Convocation of Bhavnagar University was held exactly a decade after its inception. Dr. S.Z. Qasim, Secretary, Department of Ocean Development, Govt. of India, who delivered the convocation address, highlighted the skills, diversity and natural resources of the country. He believed that the Indians had the capacity to be self sufficient in many fields and added that the eighties and beyond would be the age of space technology and oceanic sciences. The universities therefore, he said, should lay stress on these subjects and ensure that technical manpower is trained in these fields.

Referring to education, he said that although achievements in the field of education were indeed impressive, the stagnation and dropout rates at primary level were very high. So we have to carefully minimize this phenomenon by providing opportunities for vertical mobility in education to the children coming from the poor and uneducated families.

In his welcome address Mr. Dolar Vasavada, Vice-Chancellor, traced the history of the University and said that it had at present 12 colleges having 7000 students mainly in commerce, arts and science faculties affiliated to it. It has seven postgraduate departments one each in Chemistry, Mathematics, Life Sciences, Education, Economics, Commerce and Adult and Continuing Education, beside having one Engineering College and a prestigious Rural Institution known as "Lok Bharati" Sanosara.

The new Department of Adult and Continuing Education, which came into existence recently plans to establish 200 centres for adult education so that the light of knowledge can reach the illiterate and poor population of this part of the country. The University is also likely to open a new Department of Gujarati language very soon.

A new Department of Marine Sciences is also proposed to be set up which will include teaching and research in Chemical, Biological and Physical Oceanography. The International Foundation for Science, Sweden has sanctioned US $ 28,000 and the CSIR, New Delhi Rs. 75,000 to the University for research projects on coastal vegetation of this area.

Junior Colleges in Coop. Sector

The Andhra Pradesh Government is reported to have finalised a scheme for starting junior colleges in cooperative sector, to provide comprehensive education combined with vocational education with appropriate training infrastructure at the grass roots at mandal levels. There will be one college for each mandal in the State. The institution will be established through a registered cooperative society comprising parents of students and other members of the public as members.

The Government is prepared to make available land to the extent of five acres at concessional rates wherever government land is available. Each junior college will have an attached I.T.I. so that in keeping with the policy of accent on vocationalisation starting at the 'plus stage' opportunities could also be provided in every mandal for continuing vocational education in the junior colleges.

Vocational education will be imparted for half the time by providing workshop facilities as the government are doing in vocational education.

The institutions will not receive any grant-in-aid now or in future.

Promoting Women's Studies

The University Grants Commission (UGC) has identified seven universities to prepare draft syllabi on women's studies for incorporation in the undergraduate programmes. The universities are: Kerala, Punjab, NEHU, Ranchi, Banaras, South Gujarat and SNDT Women's University

The objectives of the programme include promoting awareness of the multi-dimensional roles played by women in society and the processes of social, technological and environmental changes, pursuit of human rights, investigating the causes of gender disparities, empowerment of women for effective participation in all areas of social development.

The UGC has framed guidelines for development of women's studies in universities and colleges in the country. The specific programmes and activities suggested in the guidelines are preparation of appropriate course materials, critical studies and analysis of the existing theories, concepts and practices which affect the status of women, organisation of seminars/workshops/orientation programmes for development of research methodology and course materials, extension activities, production and publication of relevant literature.

The UGC will also provide financial assistance involving the salary of 2-3 senior teachers, at least two fellowships, a recurring grant of Rs 50,000 per annum, and a non-recurring grant of Rs 40,000 for books, equipment and furniture to universities which undertake these programmes.

Statistical Tools in Research

The Department of Commerce, Alagappa University, Karaikudi organised a two week Advanced Level Course on "Statistical Tools and their Applications in Research" from 2-16 May, 1988 under the UGC Visiting Fellowship Programme for the benefit of the Research Scholars and Research Guides of the university. Dr. K. Palaniappan, Visiting Professor from P.S.G. College of Arts and Science, Coimbatore delivered a series of Lectures on Research Methodology; Correlation and Regression Analysis—Simple, Partial and Multiple; Probability and Probability distribution; Test of significance—Large Sample Test, Exact Sample Test; Nonparametric Test; Multivariate Analysis; and Time Series Analysis.

Fifty participants comprising Research Scholars, Research Guides and Faculty members from the Departments of Commerce, Education and Physical Education attended the course.

AGE Reference Centre

Asian Institute of Technology, Bangkok (Thailand)—a prestigious Institution which houses Asian Information Centre for Geotechnical Engineering (AGE)—has selected Thapar Institute of Engineering and Technology (Deemed University) Patiala, (TIET) as an AGE Reference Centre. The TIET Library will receive AGE Basic Library. It has already received :

(a) AGE Digest 1—4 vols (Group A to K)

(b) Proceedings of the 7th Southeast Asian Geotechnical Conference 1-2 Volumes

This offer to TIET is sponsored by the International Development and Research Centre (IDRC), Canada.

Queries by scholars for geotechnical information and literatures on Geotechnical Engineering may be addressed to the Librarian, TIET, Patiala.

National Seminar on Ram Manohar Lohia

Prof. Adi H. Doctor, Head of the Political Science Devpartment of Goa University, inaugurated the National Seminar on "The Contribution of Ram Manohar Lohia" on the campus of Mangalore University. The seminar was sponsored by the UGC and the Political Science Department of Mangalore University. The discussions ranged from Lohia's conception of History and Lohia as a representative of Indian Renaissance to Lohia's understanding of Gandhi and his critique of Nehruvian socialism. Prof. K. Raghavendra Rao, Head of the Political Science Dept of Mangalore University was the Director of the Seminar.

Facets of Mathematics

The Mathematics Department of Goa University organised a one day symposium on Facets of Mathematics. The Seminar focussed on recent developments in Mathematics and its appilcation in computational mathematics, biological systems particularly to functions of the human heart and ocean sciences. A panel discussion on recent developments in Mathematics initiated by Prof. S.G. Deo and Prof. A.S. Mudbidri was also held on the occasion.

News from UGC

INSAT-1B Programme of UGC

Between 16th June to 30th June, 1988 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is of one hour duration every day from 12.45 p.m. to 1.45 p.m. (Repeated from 4 p.m. to 5 p.m.) and will be available on the TV Network throughout the country. For the viewers in Delhi and surrounding areas these programmes can be seen on the second channel.

16.6.88

"Introduction to COBOL—II"
"Where Has All the Granite Gone?"
"The Oceans"

17.6.88

"The Derived Function"
"Little About Sleep, Little About Dream—I"
"Museum of Live Nature—I"

18.6.88

"Mallakhamb"
"History of Clothing—II"
"Art of Animation"

19.6.88

No Telecast

20.6.88

"Optics—VIII : Lenses—I"
"Industrial Change in India"
"Raw Materials—Wood"

21.6.88

"Quasi Crystals"
"Teleteach—III"
"Frontier Topics in Biology—Chitin Based Biological Composites"

22.6.88

"Alterbergs Limit"
"Chicken or Egg?"!

23.6.88

"Introduction to COBOL—III"
"Oil : From Small Beginnings"
"Raw Materials From the Sea"

24.6.88

"Behaviour of Functions"
"Little About Sleep, Little About Dream—II"
"Water and the City"

25.6.88

"A Door to the Outdoors"
"History of Clothing—III—Wool"

26.6.88

No Telecast

27.6.88

"Optics—IX : Lenses—II"
"Raw Materials—Iron Ore"
"Multistoried Crop Cultivation"

28.6.88

"Titanium : The Wonder Metal"
"Teleteach—IV"
"Frontier Topics in Biology—Metal Ions in Biology"

29.6.88

"Theory of Machines"
"Preserving a Priceless Legacy"
"Insect Hormones—The Control of Moulting"

30.6.88

"Introduction to COBOL—IV"
"The Search for Oil"
"Sea Weeds"

Fellowships and Visitorships in U.S.A.

The University Grants Commission (UGC) has invited the Universities to nominate senior teachers in Universities and their affiliated colleges for some fellowships and visitorships for post-doctoral research work at the universities and other institutions in the United States.

Teachers with a minimum of 10 years' teaching experience and published research work are eligible for these fellowships and visitorships. The fellowship will be for a period of one academic year (6-10 months), while the visitorship will be for a short period (2-3 months). The UGC will provide international air-fare from India to U.S.A. and back. In addition, the U.S. authorities will also provide allowance for maintenance, books and study-related travel in that country.

The fellowships/visitorships are for fundamental studies in frontier areas in Physics, Chemistry, Mathematics, Life Sciences, Earth Sciences and Bio-Technology, Laser Technology, Marine Resources Development, Computer Science and Technology, Semi-Conductor Technology, Micro-Processors applications and Micro-Electronics, Communication Technology, Educational Technology and Mass Media, Renewable Energy Studies, Environmental Sciences and Technology, Urban Development and Planning, Transport Studies and Social and Economic History (including Histriography), Science-Technology and Society, Comparative Literature, Literature and Society, Performing Arts, International Economic Co-operation, Money and Finance, Economics of Energy, Policy Sciences and Comparative Ethnography, Education, Planning and Management, Philosophy of Sciences, Social and Political Philosophy.

Last date for receipt of nominations by the UGC is 31st July, 1988.

News from Abroad

Third World Fellowship 1988

The Association of Commonwealth Universities invites applications from the staff or the graduate student body of any member university in the developing countries of the Commonwealth for award of Times Higher Education Supplement Third World Fellowship 1988. The fellowship is intended to support an applicant from one of the member universities in the developing commonwealth or from the Secretariat of the inter-university body in such a country, in a visit to another developing country of the Commonwealth to study or acquire experience of techniques of a kind which would be of developmental benefit to his/her own university or country. The award may take any one of the following forms:

1. the attachment of a member of staff, academic or administrative, to another university in the developing Commonwealth for specific experience or training of a developmental character,
2. a short study tour to other developing universities in the Commonwealth for purposes of professional and developmental importance to the candidate and his/her university,
3. exchange of staff between such universities for a particular developmental purpose,
4. an attachment to another developing university in the Commonwealth of a graduate or advanced student for research projects or training programmes with a particular developmental objective.

Last date for receipt of applications duly endorsed by the sponsoring university/body is 29/7/1988. Further details can be had from your university or Mr. P.B. Hetherington, Deputy Secretary General, (Commonwealth Awards and Appointments), John Foster House, 36 Gordon Square, London WCIH OPF.

Inter-University Tournaments 1987-88

RESULTS

A. GAMES PLAYED ON ALL INDIA BASIS

S.No.	Games	Venue (Org. Univ)	Winner Univ.	Runners Up Univ.	Winner of 3rd Place	Winner of 4th Place
1.	Athletics (M)	Punjabi	Punjabi	Panjab	GNDU	Allahabad
2.	Athletics (W)	Punjabi	Calicut	Nagpur	Mahatma Gandhi	GNDU
3.	Boxing	MDU, Rohtak	MDU	Delhi & HAU	Poona	—
4.	Cycling (M)	NOT	H	E L	D	—
5.	Cycling (W)	NOT	H	E L	D	—
6.	Gymnastics (M)	Guru Ghasidas	Jiwaji	MDU	Vikram	—
7.	Gymnastics (W)	Guru Ghasidas	Delhi	Panjab	Gwalior	—
8.	Malkhambh	Guru Ghasidas	Poona	Bombay	Shivaji & Bhagalpur	—
9.	Rowing	Calcutta	Calcutta	Madras	—	—
10.	Cross Country Races (M)	Panjab	GNDU	Panjab	Delhi	Shivaji
11.	Cross Country Races (W)	Panjab	Nagpur	Delhi	GNDU	Amravati
12.	Swimming (M)	Calcutta	Delhi	Poona	—	—
13.	Swimming (W)	Calcutta	Madras	Kerala	—	—
14.	Water Polo	Calcutta	Calcutta	Poona	Bombay	—
15.	Diving (M) (i) High Board (ii) Spring Board	Calcutta	Kanpur	Bhopal	Poona	—
16.	Diving (W) (i) High Board (ii) Spring Board	Calcutta	Devi Ahilya	Calcutta	Madras	—
17.	Wrestling	Mysore	HAU	Meerut	—	—
18.	Weight Lifting & Best Physique	Utkal	GNDU	Punjabi	Delhi	—
19.	Ball Badminton (M)	Annamalai	Calicut	Pondicherry	Anna	Gandhigram Rural Instt. Madras
20.	Ball Badminton (W)	Pondicherry	Kerala	Bangalore	Nagarjuna	
21.	Cricket (W)	GNDU	GNDU	Ranchi	Delhi	—
22.	Squash Rackets	Delhi	Delhi	Poona	Allahabad	Banaras Hindu
23.	Tennis (W)	Mangalore	Poona	Kerala	Madras	Punjabi
24.	Judo (M)	Jiwaji	Delhi	Bombay & GNDU	Amravati	Osmania
25.	Judo (W)	Jiwaji	Delhi	GNDU	Panjab	Amravati

B. GAMES PLAYED ON TWO ZONE BASIS

S.No.	Games	Zone	Venue	Winners Univ.	Runners Up. Univ.	Losing Semi-Finalists	
						Lost to Winner	Lost to Runners-up
1.	Basketball (W)	North-East	Kurukshetra	GNDU	Delhi	Kurukshetra	Panjab
		South-West	Sardar Patel	Bangalore	Calicut	Kerala	Bombay
		AIF	Kurukshetra	GNDU	Calicut	Bangalore	Delhi
2.	Chess	North-East	Jadavpur	Delhi	Allahabad	Patna	Lucknow
		South-West	N O	T	H	E L	D
		AIF	Jadavpur	Delhi	Bangalore	Madras	Allahabad
3.	Handball (M)	North-East	HAU	HAU	Punjab	Panjabi	Punjab Agrl.
		South-West	Kakatiya	Nagpur	Andhra	Ajmer	Indore
		AIF	Kakatiya	Nagpur	Panjab	Andhra	HAU
4.	Handball (W)	North-East	HAU	Panjab	Panjab Agrl.	Delhi	GNDU
		South-West	Kakatiya	Kerala	Calicut	Nagpur	Amravati
		AIF	Kakatiya	Calicut	Kerala	Panjab	Panjab Agrl.
6.	Hockey (W)	North-East	Kashmir	Panjab	GNDU	Punjabi	Kurukshetra
		South-West	Marathwada	Mahatma Gandhi	Mysore	Rajasthan	Gujarat
		AIF	Marathwada	Mahatma Gandhi	Panjab	GNDU	Mysore
6.	Kabaddi (W)	North-East	Calcutta	—	—	—	—
		South-West	Poona	Bombay	Poona	Nagpur	Shivaji
		AIF	Poona	Bombay	Poona	Delhi	Calcutta
7.	Kho-Kho (M)	North-East	BHU	Delhi	Punjabi	Panjab	BHU
		South-West	Gujarat Agrl.	Poona & Bombay	Shivaji	Marathwada	—
		AIF	BHU	Poona	Delhi	Bombay	Punjabi
8.	Kho-Kho (W)	North-East	GNDU	GNDU	Punjabi	Panjab	Kurukshetra
		South-West	Baroda	Baroda & Poona	Mysore	Pombay	—
		AIF	GNDU	GNDU	Punjabi	—	—
9.	Tennis (M)	North-East	Lucknow	AMU	Delhi	—	—
		South-West	Annamalai	Poona	Bombay	—	—
		AIF	Lucknow	Poona	AMU	Delhi	—
10.	Volleyball (W)	North-East	Delhi	Delhi	GNDU	Ranchi	Panjab
		South-West	Karnataka	Mahatma Gandhi	Calicut	Kerala	Osmania
		AIF	Karnataka	Mahatma Gandhi	Calicut	Delhi	GNDU

C. GAMES PLAYED ON FOUR ZONE BASIS

S.No.	Games	Zone	Venue	Winners Univ.	Runners Up Univ.	Losing Semi-Finalists Lost to Winners	Losing Semi-Finalists Lost to Runners-
1.	Badminton (M)	North	Jammu	GNDU	HPU	—	—
		South	Andhra	Osmania	Calicut	Andhra & MGU	—
		West	Nagpur	Bombay	Poona	Nagpur	Amravati
		East	Osmania	Ravishankar	Patna	Ranchi	L.N. Mithil
		AIF	Andhra	Osmania	Calicut	GNDU	—
2.	Badminton (W)	North	Jammu	Delhi	GNDU	—	—
		South	Andhra	Madras	MGU	Calicut & Nagarjuna	— —
		West	Nagpur	Nagpur	Bombay	Poona	Shivaji
		East	Osmania	Jadavpur	Burdwan	Guru Ghasidas	Patna
		AIF	Andhra	MGU	Madras	Delhi	—
3.	Basketball (M)	North	Jamia Millia	—	—	—	—
		East	BIT, Ranchi	Berhampur	Calcutta	Ranchi	Ravishanka
		West	Jodhpur	Nagpur	Bombay	Gujarat	Baroda
		South	Osmania	Kerala	Annamalai	Bharthiar	Osmania
		AIF	Osmania	Delhi	Kerala	Annamalai	Jamia Mill
4.	Cricket (M)	North	Kurukshetra	Delhi	Kurukshetra	GNDU	Jamia Mill
		East	Calcutta	Calcutta	Burdwan	Patna	Jadavpur
		West	NOT HELD				—
		South	Madras	Bangalore	Anna	—	—
		AIF	Madras	Delhi	Bangalore	Baroda	Poona
5.	Football	North	Kashmir	AMU	GNDU	Panjab	Kashmir
		East	Kalyani	Kalyani	Burdwan	BCKVV	Manipur
		South	Mahatma Gandhi	Calicut	MGU	Madras	—
		West	Dr. H.S. Gour	Rani-Durgawati	Dr. H.S. Gour	Shivaji	Jiwaji
		AIF	MGU	AMU	MGU	Calicut	Jabalpur
6.	Hockey (M)	North	Panjab	Panjab	GNDU	Kurukshetra	Punjabi
		East	Sambalpur	Sambalpur	Ranchi	Ravishankar	Guru Ghasidas
		South	Bangalore	Bangalore	Mangalore	Madras	Mysore
		West	Amravati	Devi Ahilya	Amravati	Dr. H.S. Gour	Bhopal
		AIF	Panjab	Panjab	GNDU	Bangalore	Sambalpur
7.	Kabaddi (M)	North	G.B. Pant	Panjab	GNDU	MDU	Kurukshetr
		East	OUAT	Burdwan	BHU	Guru Ghasidas	Ranchi —
		South	Madurai Kamaraj	MGU	Bharathidasan	Kerala	Madras
		West	Shivaji	Shivaji	Marathwada	Amravati	Nagpur
		AIF	Shivaji	Shivaji	Marathwada	GNDU	MGU
8.	Table Tennis (M)	North	NOT HELD				
		East	L.N. Mithila	North-Bengal	Calcutta	Burdwan	NEHU
		South	Anna	Anna	Bangalore	—	—
		West	Devi Ahilya	Bombay	DAV	Marathwada	Gujarat
		AIF	Anna	Anna	Delhi	Bombay	—
9.	Table Tennis (W)	North	NOT HELD				
		East	L.N. Mithila	Burdwan	Patna	Guru Ghasidas	Ranchi
		South	Anna	Kerala	Calicut	—	—
		West	Devi Ahilya	Bombay	Nagpur	Poona	DAV
		AIF	Anna	Bombay	Nagpur	Calicut	—
10.	Volleyball (M)	North	AMU	AMU	Allahabad	Kurukshetra	Panjab
		East	Bhagalpur	Manipur	Ravishankar	L.N. Mithila	Ranchi
		South	Mysore	Calicut	M.K.U.	Kerala	Mysore
		West	Rajasthan	Amravati	RDU	Poona	Rajasthan
		AIF	Bhagalpur	Calicut	MKU	Allahabad	AMU

CALENDAR OF EVENTS

Proposed Dates of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
June 27-July 8, 1988	Short-term Intensive Training Programme on Abstracting & Indexing	To train the participants in the application of abstracting and Indexing methods and construction of an indexing language (Thesaurus).	National Institute of Small Industry Extension Training, Hyderabad.	Mrs. K. Subhashini, Course Director, NISIET, Yousufguda, Hyderabad-500045
July, 12-14 1988	**International Symposium on Recent Advances in Male Reproduction**	**The Symposium will focus on Molecular Biology of Inhibin, Androgen Binding, Protein Regulation of Fertility, Peptides in Testis Function and Steroidogenesis in Testis.**	**University of Hyderabad in collaboration with the Indian Society of Andrology.**	**Prof. P.R.K. Reddy, School of Life Sciences, University of Hyderabad, Hyderabad 500134**
September 26-28 1988	**International Conference on Welding Technology in Developing Countries**	**To provide an opportunity to scientists and technologists from developing and advanced countries to share their experiences in the area of Welding Technology.**	**University of Roorkee, Roorkee.**	**Prof. P.C. Gupta, Organising Secretary, International Conference on Welding Technology in Developing Countries, Department of Mech. & Ind. Engg., University of Roorkee, Roorkee-247667**
October 27-29, 1988	National Seminar on Statistics in Medicine, Health and Nutrition.	To discuss Data-Base and Analysis in Health and Nutrition—Present and Future.	Department of Statistics National Institute of Nutrition, Hyderabad.	Dr. K. Visweswara Rao, Organising Secretary, National Seminar on Statistics in Medicine, Health and Nutrition, Department of Statistics, National Institute of Nutrition, Indian Council of Medical Research, Jamai Osmania, Hyderabad-500 007
December 13-17, 1988	**International Seminar on Education and Training in Water Resources in Developing countries.**	**To assess the requirements of manpower, education and training in Water Resources Sector upto the year 2025 in the developing countries.**	**Central Board of Irrigation and Power, New Delhi.**	**Mr. C.V.J. Varma, Organising Secretary, International Seminar on Education and Training, Central Board of Irrigation and Power, Malcha Marg, Chanakyapuri, New Delhi-110021**
Dec. 15-17, 1988	National Conference on Fluid Mechanics and Fluid Power	To provide a forum for exchange of information on topics in flcid mechanics and design, research and development activities in areas like power generation, aerodynamics, fluidics, biomechanics, etc.	Harcourt Butler Technological Institute, Kanpur.	Dr. N.L. Kachhara, Organising Secretary, 16th National Conference on Fluid Mechanics and Fluid Power, Mechanical Engineering Department, Harcourt Butler Technological Institute, Kanpur-208002

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The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month, while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research scholars and students of education are welcome to use these resources. The Library is open from 9-00 a.m. to 5-30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

ADDITIONS TO AIU LIBRARY

Altbach, Philip G. and others. *Education in South Asia : A bibliography*. New Delhi, Vistaar Publications, 1987. xii, 360p.

Azad, J.L. *Higher education in India : The deepening financial crisis*. New Delhi, Radiant (c 1988) xvi,257p.

Briceno, Salvano and Pitt, David C. *New ideas in environmental education*. London, Croom Helm (c 1988) xiv,219p.

Chanana, Karuna, ed. *Socialisation education and women : Explorations in gender identity*. New Delhi, Orient Longman (c 1988) 320p.

Datta, S. C. *Adult education in third world*. New Delhi, Criterion Publications (c 1987) 192p.

Debi, Sailabala. *Economics of higher education*, Meerut, Anu Books, 1988. xv,182p.

Dharam Vir. *Education and polity in Nepal : An Asian experiment*. New Delhi, Northern Book Centre (c 1988) xiv, 176p.

Elias, Norbert and Dunning, Eric. *Quest for excitement : Sport and leisure in the civilizing process*. Oxford, Basil Blackwell (c 1986) x, 313p.

Fraser, Ronald. *1968 : A student generation in revolt*. London, Chatto and Windus, 1988. 370p.

Hommadi, A.H. *University in the third world : Perspectives in planning and management*. New Delhi, Gospel Publishing Co. (c 1987) vi, 176p.

Horne, John and others, ed. *Sport, leisure and social relations*. London, Routledge and Kegan Paul (c 1987) 253p.

Iyengar, B.K.S. *Light on yoga*. London, Unwin (c 1976) 544p.

Jayadeva Yogendra, ed. *Cyclopaedia yoga*. Bombay, Yoga Institute, 1988. 162p.

Kalia, D. R. *Classification schedule for area studies*. New Delhi, Reliance, 1988. 102p,

Kapoor, M. M. and Premi, Kusum K. *Development and maintenance of educational services : A study of norms*. New Delhi, Vikas (c1988) ix, 168p.

Lal, Sheo Kumar and others, ed. *Readings in the sociology of the professions*. Delhi, Gian Publishing House (c 1988) xxvi,461p.

Lynam, Desmond. *Guide to the Commonwealth games*. London, BBC Publications (c 1986) 128p.

McArthur, David L., ed. *Alternative approaches to the assessment of achievement*. Boston, Kluwer Academic (c 1987) xvi,268p.

Microcomputer application in education and training for developing countries : Proceedings of a Meeting on the use of microcomputers for developing countries. Boulder, Westview (c 1987) xxi, 309p.

Mohanty, Jagannath. *Modern trends in Indian education : Current issues and strategies in context of new education policy*. New Delhi, Deep & Deep (c 1988) 367p.

Psacharopoulos, George, ed. *Economics of education : Research and studies*. Oxford, Pergamon Press (c 1987) xvi, 482p.

Rasool, G. and Chopra, Minakshi. *Education in Jammu and Kashmir*. Jammu Tawi, Jay Kay Book House (c 1986) 607p.

Self, John, ed. *Artificial intelligence and human learning : Intelligent computer-aided instruction*. London. Chapman and Hall (c 1988) xix,432p, Sharma, M. S. *International Standard Book Numbering system in India.* New Delhi, Saraswati Book Co. (c 1987) x, 189p.

Sharpes, Donald K. *Education and the US government.* London, Croom Helm (c 1987) 190p.

Srivastava, Anand P. *Teaching and learning in XXI century.* New Delhi, Learning Laboratory (c 1987) 198p.

Terry, David. *Tertiary college : Assuring our future.* Milton, Keynes, Open University Press (c 1987) xix, 202p.

Thomas, R. Murray and Kobayashi, Victor N., ed. *Educational technology : Its creation, development and cross-cultural transfer.* Oxford, Pergamon Press (c 1987) xii, 275p.

Ved Prakash. *Student aspirations : Some misconceptions,* Delhi, Mittal, 1987. xiii, 145p.

Warnock, Mary. Common policy for education. Oxford, University Press, 1988. 185p.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities.

HUMANITIES

Philosophy

1. Khanna, Kalpna. *Kautilya, Marx, Gandhi ke arthik chintan ke darshnik adhar ka tulnatmak adhyayan.* Rohilkhand. Dr. S. N. Pandey, K.G.K. College, Moradabad.

2. Pandey, Sachchidanand. *The Indian temper in platonic thought.* Delhi.

3. Ravindran Pillai, R. *Vedic concept of Yajna and its social significance.* Kerala. Dr. K. Saratchandran, Prof. and Head, Department of Philosophy, University of Kerala, Trivandrum.

4. Singh, Gurveen, K. *Metaphysical presuppositions of education.* Hyderabad. Prof. Suresh Chandra, Reader, Department of Philosophy, University of Hyderabad, Hyderabad.

Religion

1. Seth Ved. *Study of biographies of the Buddha : Based on Pali and Sanskrit sources.* Delhi.

2. Sharma, Indra Deo. *Nirukte daivat sameeksha.* BHU. Dr. Vyas Mishra.

3. Zaid Khaled Muhammad Ai-Zuriqat. *Social justice in Islam.* Jamia. Prof. Mushirul Haq, Former Head, Department of Islamic and Arab Iranian Studies, Jamia Millia Islamia, New Delhi.

Fine Arts

Drawing & Painting

1. Shashi Bala. *Mewar chitran shaili mein vishay sampujjan.* Rohilkhand. Dr. Govind Behari Sharma, S. R. S. Mahila Mahavidyalaya, Bareilly.

2. Singh, Reena. *Awadh kee chitrakala.* BHU. Prof. R. Das Gupta. Reader and Head, Department of History of Art, Banaras Hindu University, Varanasi.

3. Soti, Alka. *Ajanta-chitran mein kala ke chhaha angon ka saidhantik mulyankan.* Rohilkhand. Dr. S. B. L. Saxena, Bareilly College, Bareilly.

Music

1. Bhatnagar, Rajni. *Sitar vadan kee shoutiyan : Ek vivechanatmak adhyayan.* Rohilkhand. Dr. (Smt) Sudha Rani Sharma, S.R.S. Mahila Mahavidyalaya; Bareilly.

2. Jayshree, M.K. *The role of Veena in theory and practice of Karnatak music.* Bangalore. Dr. K. S. Raghavendra Rao, Aparna 648, 11th Main Road, 5th Block, Jayanagar, Bangalore.

Language & Literature

English

1. Achar, Radha. *Patterns and paradoxes : A study of the structure and themes of Paul Scott's The Raj Quartet.* Mangalore. Dr. C.N. Ramachandran, Reader and Head, Department of English, Mangalore University, Mangalore.

2. Datta, Nirmal. *Freedom and form : An inquiry into selected novels of Iris Murdoch.* Panjab.

3. Gangele, Arvind Kumar. *Analysis of Pandit Jawahar Lal Nehru's prose style.* Bhopal. Prof K.C. Nair, Principal, SSL Jain College, Vidisha.

4. Mehta, R.D. *William Hazlitt as a critic.* Vikram. Dr. L.S. Sharma, Bank Colony, Devas Road, Ujjain.

5. Meitei, Moirangthem Mani. *The stream-of-consciousness technique with special reference to the novels of Virginia Woolf.* Manipur. Prof. S.N. Prasad, Department of English, Manipur University, Imphal.

6. Mishra, Nagendra. *Philip Larkin's vision of reality.* BHU. Dr. S.N. Pandey, Prof., Department of English, Banaras Hindu University, Varanasi.

7. Ramachandran, N. *Malayalam influenced English : A study based on Lexis and syntax as found in the English written by Malayalam speaking writers.* Kerala. Dr. Elias Valentine, Reader, Institute of English, University of Kerala, Trivandrum.

8. Randhawa, Harbir Singh. *Theodore Dreiser, The novelist : A critical study.* Rohilkhand. Dr. R. A. Misra, Bareilly College, Bareilly.

9. Shakury, Sabba Abdul Hameed. *Conrad's politics : Order and anarchy in the fiction of Joseph Conrad.* Panjab.

10. Singh, Jai Pal. *Themes and techniques in the novels of Mulk Raj Anand.* Rohilkhand. Dr. Satish Kumar, K. G. K. College, Moradabad.

11. Subba Rao, Vangury. *Social relevance of the plays of John Galsorthy : A selective study.* Andhra.

Sanskrit

1. Arya, Karna Devi. *Grihya sutron mein pratibimbit lok sanskriti.* Rohilkhand. Dr. S. P. Sharma, N. M. S. N. Dass College, Badaun.

2. Gautam, Bhuvnesh. *Astika darsanon mein pratipadita mimamsa siddhant*. Delhi.

3. Gupta, Alka. *Sanskrit yog sahitya mein vyavharik paksh evam uska shastriya adhyayan*. Rohilkhand. Dr. R. C. Kandpal, K. G. K. College, Moradabad.

4. Jhansi, Lakshmi Bai. Pothukuchi. *Comparative study of Srimadramayana and Adhyatmaramayana*. Andhra.

5. Khanna, Sangeeta. *Prakaran panchika : Ek alochanatmak adhyayan*. BHU. Dr. Vimla. Karnataka.

6. Kunjamma, N. V. *Ramavarma Yasobhushana by Sadasivadiksita : A critical edition and study*. Kerala. Late Dr. K. Raghavan Pillai.

7. Muralidhar. *Shankar Digvijay : Ek sameekshatmak adhyayan*. BHU. Dr. Trinath Sharma.

8. Parmani, Sawarn. *Sanskrit ke pramukh pratik natak*. Rajasthan. Dr. M. M. Agarwal, Lecturer, Department of Sanskrit, 56 Arvind Niwas, Banasthali Vidyapith, Banasthali.

9. Patani, Indubala. *Jainacharya Shri Kunthusagar kee Sanskrit sahitya ko den*. Devi Ahilya. Dr. H. R. Dholkiya, Department of Sanskrit, Govt. Sanskrit College, Indore.

10. Rastogi, Sadhna. *Bhatti kavya ka bhasha vaigyanik adhyayan*. Rohilkhand. Shri K. D. Gour, N.M.S.N. Dass College, Budaun.

11. Sharma, Malti. *Vaidic samhitaon mein nari*. BHU. Prof. V. K. Verma, Department of Sanskrit, Banaras Hindu University, Varanasi.

12. Sharma, Mridula. *A comparative study of Kalidasa's Ritusamhora and Edmund Spenser's Shepheardes Calender*. Rohilkhand. Dr. Ramjit Mishra, Bareilly College, Bareilly.

13. Sharma, Prem. *Society as depicted in Gupta inscriptions*. Delhi.

14. Sharma, Shekhar Datt. *Tandya Brahmaniya yajno ka samaj shastra kee dristi se adhyayan*. Panjab.

15. Sharma, Surinder Kumar. *Bharatparijatam ka alochanatmak adhyayan*. Panjab.

16. Sinha, Kalpana. *Markandeya puran ka ayurvedik pariprekshya mein alochanatmak adhyayan*. BHU. Prof. S.N. Tripathi.

17. Sudan, Sunita. *The literary study of the inscriptions of the Paramara Dynasty*. Jammu. Dr. Ved Ghai, Prof, Department of Sanskrit, University of Jammu, Jammu.

18. Verma, Ram Krishna. *Vadeebhsinghsurikrit Gadyachintamani ka sahityik anusheelan*. Rohilkhand. Dr. Pramod Bala Mishra, Bareilly College, Bareilly.

Arabic

1. Mukhtar Hussain, S. M. *A critical study and edition of Zawaid Ion-e-Maja*. Osmania.

Pali

1. Basu, Subhra. *A study of the biographical works on the Buddha mainly based on Sanskrit sources*. Calcutta.

Punjabi

1. Iqbal Singh. *An analytical study of origin and growth of folk dances of Panjab*. Panjab.

2. Jogesh. *Gurbani te Sufi kavita da tulnatmak adhyayan*. Delhi.

3. Maghar Singh. *Prof. Mohan Singh dee kavita vich parampara, prayog te navian padhtiyan*. Panjab.

4. Om Prakash. *A comparative study of compositions of Nam Dev and Guru Nanak in the context of Adi Granth*. Delhi.

5. Updesh Kaur. *A critical study of Gurdial Singh's novels*. Delhi.

Hindi

1. Bharati, Ravindra. *Parisya evam pashchatya saundaryashastriya alok mein swatantrayottar Hindi kavita ka anusheelan*. D.Litt. Vikram.

2. Chhima Devi. *Adhunikta ke sandarbh mein nayee kavita ke prabandh kavyon ka adhyayan*. Panjab.

3. Gyanendra Singh. *Kavi-sammelan : Swarup-Vikas tatha Hindi kavita per uska prabhav*. Rohilkhand. Dr. R. S. Arya, Vardhman College, Bijnor.

4. Indumati. *Vimal Suri krit 'Paumchariu' aur Goswami Tulsidas krit 'Ramcharitmanas' ka tulnatmak adhyayan*. Rohilkhand. Dr. Ramanand Sharma, Hindu College, Moradabad.

5. Keshari, Suman Kumari. *Soordas ka Bharmargeet : Ek samajik sanskritik adhyayan*. JNU. Dr. (Mrs) Savitri Chandra, Centre of Indian Languages, Jawaharlal Nehru University, New Delhi.

6. Khaneja, Minu. *Ritimukta kavya mein purakhyan*. Delhi.

7. Krishnan Nair, P. V. *New Hindi poetry : An aesthetic study*. CUST. Dr. P. V. Vijayan, Prof, Department of Hindi, Cochin University of Science and Technology, Cochin.

8. Mehta, Sujata Prakashchandra. *Shri Anandprakash Jain : Personality and his works*. Shivaji. Dr. P. P. Phatak, Head, Department of Hindi, D. B. F. Dayanand College, Solapur.

9. Mishra, Savita. *Upanyaskar Amrit Lal Nagar ke nari patra*. Rohilkhand. Dr. Usha Jain, Hindi Vibhag, Vardhman College, Bijnor.

10. Narasimhacharyulu, T. V. *Kamaleshwar ka katha sahitya : Pravruthimulak visleshan*. Venkateswara.

11. Nirbhay, Sadhana. *Hindi ke musalman kaviyon ke Krishna kavya ka anusheelan*. Vikram. Dr. B. Badole, Asstt. Prof., Department of Hindi, Vikram University. Ujjain.

12. Pandey, Rup Rekha. *Beesaveen shatabdi ke Brajbhasha Prabandh kavyon per puranon ka prabhav*. Rohilkhand. Dr. M. S. Meetal, N.M.S.N. Dass College, Budaun.

13. Patil, Krishna Rajaram. *The social life reflected in Hindi rural short stories after independence from 1950 to 1975*. Shivaji. Dr. S. G. Gokakakar, Head, Department of Hindi, Shivaji College, Gandhiglaj.

14. Prabha Kiran. *Ansakti yog kee drishti se Dinkar kavya ka adhyayan : Kurukshetra, Rashmirathi tatha Urvashi ke vishisht sandarbh mein*. Panjab.

15. Pramod Kumari. *Sathottari Hindi kavita mein narnari swarup evam sambandh : Ek sahityik evam samaj manovaigyanik adhyayan*. Rohilkhand. Dr. S. D. Dwivedi, Govt. Raza College, Rampur.

16. Rajesh Kumar. *Hindi bhasha ke vidhyarthiyon ke truti vishleshan doorasth aur pratyaksh shikashan paddhatiyon ke adhar per tulnatmak adhyayan*. Delhi.

17. Ramyash Singh. *Tulsi sahitya mein rajnitik vichar*. BHU. Dr. R. S. Dubey.

18. Sham Lal. *Hindi kee bhavatmak sangyaon ka vishleshanatmak adhyayan : Paryayavachi sangyaon ke sandarbh mein*. Panjab.

19. Sharma, Brijnandan Prasad. *Surdasktit sahityalahari ka sameekshatmak adhyayan*. Rohilkhand. Dr. Maniram Mishra, Upadhi College, Pilibhit.

20. Sharma, Murari Lal. *Hindi yatra-sahitya ko Dr. Bhagvatsharan Upadhyaya ka yogdan*. Rohilkhand. Dr. R. S. Arya, Vardhman College, Bijnor.

21. Sharma, Sunila. *Sathottari Hindi natak : Parivartit chetna ke roop*. HP.

22. Shripad, Vanjape Shubhada. *Chhayavadi kavya mein atmabhivyakti : Kavi Chatushtaya ke atirikt.* Osmania.

23. Shrivastav, Preeti. *Sumitranandan Pant ke sahitya mein yugchetana.* Rohilkhand. Dr. Manjari Tripathi, Bareilly College, Bareilly.

24. Singh, Ramashankar. *Amrit Lal Nagar ke katha sahitya ka samaj shastriya adhyayan.* Rohilkhand. Dr. Manmohan Shukla, Govt. Raza College, Rampur.

25. Srivastava, Kamlesh Lal. *Satven dashak ke Hindi upanyason mein samajik sambandh.* Delhi.

26. Sunita Rani. *Atmakatha lekhan kee apekshyen aur Hindi atmakatha sahitya.* Rohilkhand. Dr. Kamta Kamlesh, J. S. Hindu College, Amroha, Moradabad.

27. Usha Kumari. *Bhagvati Prasad Vajpai ke katha sahitya mein vyakti aur samaj.* Panjab.

28. Vanaja, K. *A study of the prose writings of Anand Shankar Madhavan.* CUST. Dr. N. Raman Nair, Head, Department of Hindi, Cochin University of Science and Technology, Cochin.

29. Varni, Sukh Paul. *Arya Samaj aur khari boli gadya ka gyan pradhan sahitya : Shaily tatha vakya vinyas ke vishisht sandarbh mein 1900 se 1950 tak.* Panjab.

30. Vats, Mahavir Singh. *Sathottri kavita mein sanskritik chetna, 1960-80.* Delhi.

31. Veena Rani. *Upendranath Ashk ke katha sahitya mein vyakti aur samaj.* Panjab.

Urdu

1. Mahammad Qaisar Kamil. *Hindustan kee jange azadi mein Urdu sahafat ka role.* Rohilkhand. Sri Z.H. Waseem, Bareilly College, Bareilly.

2. Muhammad Arif. *A critical study of Urdu romantic poetry from 1900 to 1950.* Delhi.

3. Oudesh Rani. *Influence of other Indian languages and literature on Deccani Urdu.* Hyderabad. Prof. Gian Chand Jain.

4. Qureshi, Mohd. Abdul Rahman. *Progress of Urdu in the linguistic states of India since 1956.* Hyderabad. Prof. Gian Chand Jain.

5. Syed Shahid Iqbal. *A critical study on the life and poetry of Ishrat Gayavi.* Magadh.

6. Tanzil Ahmad. *Musafi as poet.* Rohilkhand. Dr. S.A. Sandelvi, Bareiliy College, Bareilly.

Bengali

1. Bhikhi Prasad. *Comparative irificism of the Ramayana by Krittibasa and the Ramacharita Manasa.* NBU.

2. Chakraborty, Nani Gopal. *Purba Dakshin Banger lokokhini.* Rabindra Bharati.

3. Gupta, Pusan. *Bangla theatre O snyog samasya.* Rabindra Bharati.

4. Mistri, Subhash Chandra. *Sunderbaner samaj O arthanitite gunin O tader mantra sahityer bhumika.* Rabindra Bharati.

5. Mukherjee, Pratap Chandrn. *Kalkatar Gupta Samity : Unish satak.* Rabindra Bharati.

6. Roy, Barendranath. *Life of the people as revealed in the 20th century Bengali poetry.* NBU.

Oriya

1. Jena, Raj Kishore. *Oriya prabandha O prabandhika 1850-1920.* Berhampur. Dr. Banamali Rath, Department of Oriya, S.K.C.G, College, Parlakhemundi, Dist. Ganjam.

2. Mahapatro, Prasanta Kumar. *Adhunika Oriya sahityare sanskara chetena O kratikaree srasta sreebastcha panda.* Berhampur. Prof. Basudeva Sahu, Department of Oriya, Utkal University, Vani Vihar, Bhubaneswar.

Marathi

1. Kadera, Talib Sheikh. *Muslim santkavi Shansuntiji Brahmanonyanchya Marathi kavyachi vangmayeen mulyamapan.* Nagpur. Dr. (Mrs) Malti Patil, Institute of Arts and Social Sciences, Nagpur.

Gujarati

1. Bawalji, Mahipatsinh Fatesinh. *Technique in Gujarati poetry of Gandhian era.* Baroda.

2. Bhavsar, R.K. *A critical study of Jyotindra Deve.* Saurashtra. Dr. B.M. Pandy.

Tamil

1. Chandrasekaran, G, *Treatment of hero in minor epics.* Madurai.

2. Jesiah, M. *Language of Anantharangam Pillai's diary.* Madurai.

3. Ramasamy, A. *Society as revealed in the Tamil literature of Naicker period.* Madurai.

Malayalam

1. Gangadharan Nayyar, G. *The development of Malayalam stage in relation to dramatic literature.* Kerala. Prof. N. Krishna Pillai, Nandanam, E.V. Road, Jagathy, Trivandrum.

Telugu

1. Harischandra, Ch. *Mudivarthi Kondamacharyulu rachanalu : A case study.* Venkateswara. Dr. K. Sarvottama Rao, Department of Telugu, Sri Venkateswara University College, Tirupati.

2. Lakshmi Rajyam, Chittiboina. *Sri Unnava Lakshminarayanagari jeevitam-sahityam.* Andhra.

3. Uma Devi, B. *Adhunika Andhra kavitvamu : Stree.* Venkateswara. Dr. J.V. Subba Rayudu, Lecturer, Department of Telugu, Jawahar Bharati, Kavali.

Geography

1. Kulshrestha, Veena. *Hasanpur Tehsil : A study in land utilization.* Rohilkhand. Dr. R.P. Singh, Hindu College, Moradabad.

2. Mathur, Brijesh Behari. *Scheduled Caste population of Bundelkhand Region of Uttar Pradesh : A study in social geography.* Rohilkhand. Dr. R.P. Singh, Hindu College, Moradabad.

3. Mipun, B.S. *Immigrants and the agriculture changes in the Lower Brahmaputra Valley : A case study of Darrang District.* NEHU. Dr. R. Gopalakrishnan, Department of Geography, North Eastern Hill University, Shillong.

4. Mishra, Anil Kr. *Dun Valley : A study in settlement geography.* BHU. Prof. Harihar Singh.

5. Mukhopadhyay, Anita. *Forests of the platian section af West Bengal : A geographical appraisal.* Calcutta.

6. Pachauri, Mahesh Kumar. *Suburbanization process in Delhi Metropolitan Region: A spatial and temporal analysis.* JNU. Dr. Sudesh Nangia, Centre for the Study of Regional Development, Jawaharlal Nehru University, New Delhi.

7. Shanthakumari, A. *Madurai Region : An analysis of changing pattern of cropland use and modernisation of agriculture among rural farmers.* Madurai.

8. Singh, Hridaya Narain. *Power and privilege, a sociological analysis : A study of Dobhi Block in Jaunpur District of Uttar Pradesh.* JNU. Prof. K.L. Sharma, Centre for the Study of Social Systems, Jawaharlal Nehru University, New Delhi.

9. Vashistha, Balendu. *Integrated rural planning : A case study of Gunnaur Tehsil District Budaun, U.P.* Rohilkhand. Dr. S.P.S. Yadav, S.M. College, Chandausi.

10. Verma, Krishna Chandra. *Rampur Janpad, U.P. ke samajik-arthik vikas per krishiya vikas ke prabhav ka anusheelan.* Rohilkhand. Dr. R.P. Singh, Hindu College, Moradabad.

11. Yadav, Anurag Singh. *Integrated area development planning at micro level with special reference to Bijnor District, Uttar Pradesh.* Rohilkhand. Dr. Usha Singh, Hindu College, Moradabad.

History

1. Ali Ahmad. *Inter-regional linkages in North West India during early Mughals.* JNU. Prof. Moonis Raza, Vice-Chancellor, University of Delhi, Delhi.

2. Ansari, Jabir Ali. *Hazrat Umar Farookh kee uplabdhiyan.* Rohilkhand. Dr. M.S. Tyagi, K.G.K. College, Moradabad.

3. Bandyopadhyay, Sekhar. *Social mobility in Bengal in the late nineteeth and the early twentieth centuries.* Calcutta.

4. Gadre, Mukund Mahadeo. *Marathyanchya rajkarnant Sakharambapu Vokil yanchi kamgiri.* Nagpur. Dr. B.R. Andhare, Department of History, Kala and Samaj Vigynan Mahavidyalaya, Nagpur.

5. Gnanamuthu, J.R. *Jesutt impact of Tamil society, 1542-1773.* Madurai.

6. Maikap, Sudhir Chandra. *Socio-economic condition of Orissa in the eighteenth century from literaty historical and other sources.* Sambalpur. Dr. B.S. Das, Asstt. Prof., Department of Humanities and Social Sciences, Indian Institute of Technology, Kharagpur and Dr. B.C. Jena, Reader, Department of Oriya, Sambalpur University, Burla.

7. Ramanaiah, J. *A study of the temples in Karimnagar District.* Hyderabad. Prof. T.R. Sharma, Reader and Head, Department of History, University of Hyderabad, Hyderabad.

8. Rukmani, K. *The history of Madurai Municipality, 1921-1947.* Madurai.

9. Sadasivan, K. *Devadasi system in medieval Tamil Nadu.* Madurai.

10. Singh, N. Birachandra. *Socio religious life of the Meiteis in the 18th century.* Manipur. Dr. S.N. Pandey, Department of History, Manipur University, Imphal.

11. Thakur, Agnes. *A study of the growth of political parties in C.P. and Berar ftom 1920-1947.* Durgawati.

12. Thulasi Bai, A. *History of the agitations for temple entry in Kerala.* Kerala. Dr. T.K. Ravindran, Vice-Chancellor, University of Calicut, Calicut.

13. Virmani, Kewal Krishan. *Nationalist movement in Zambia.* Delhi.

14. Yadav, Rajendra Pal Singh. *Ambedkar ke samajik va arthik kavyon ka itihasik vivechan.* Rohilkhand. Dr. P.C. Saxena Lecturer, (Retd.) Govt. Raza P.G. College, Rampur.

15. Yadav, Shiv Nath Ram. *Bharat aur Nepal ke rajnitik aur sanskritik sambandh : Lichchhivi kal tak.* BHU. Dr. (Mrs.) K.K. Gopal.

INDIAN INSTITUTE OF SCIENC

BANGALORE-560 012

Requires

PRINCIPAL SCIENTIFIC OFFICER

R(IA) 308-20/88

II. SENIOR SCIENTIFIC OFFICER

R(IA) 308-21/88

For the Distributed Information Centre (DIC under the Bio-technology Information System (BTIS located at the Physics Department.

The principal objective of this facility is to provid ready access to users of computer based informatio on resources and data bases in fields related to Biotechnology.

Qualification and Experience

Post I Essential : (1) Ph.D. in the area of Physical or Life Sciences/Information or Computer Science or any related Branch. Familiarity with Compute programming and knowledge of Biology essential.

(2) 8-10 years experience in managing project and Personnel required. Evidence of ability to shoulde responsibilities such as planning and execution of the activities related to the Bio-informatics Centre.

Desirable : Experience or knowledge of modern micro/mini/supermini computers, Computer Networking, development of computer programmes for Biological Applications.

Post II Essential : Ph.D. in Physical or Life Sciences/Computer or Information Science or Post-graduate in Physical or Life Sciences/Computer or Information Sciences with atleast 5-8 years experience in the relevant field.

Desirable : Experience or familiarity/knowledge of Computer Networking, development and management of related software. Persons with Life Sciences background must have an aptitude for Bio-informatics.

Emoluments

Post I : Rs. 5,055/- p.m. in the scale of
Rs. 3700-125-4700-150-5000

Post II : Rs. 4,090/- p.m. in the scale of
Rs. 3000-100-3500-125-4500.

Relaxation : The number of years of experience is relaxable at the discretion of the competent authority in case of candidates possessing exceptionally good record and outstanding capabilities.

Details and prescribed application forms can be obtained on request from the Registrar accompanied by a crossed Postal Order for Rs. 5/- (free of cost to SC/ST or production of Caste Certificate from a competent authority) drawn in favour of Registrar, Indian Institute of Science, Bangalore-560012 alongwith a self-addressed stamped Rs. 5.40 envelope of the size 28x18 cms, **on or before 13th June, 1988.**

REGISTRAR

CENTRAL DRUG RESEARCH INSTITUTE

(Council of Scientific & Industrial Research)

ADVERTISEMENT No. 6/88

Applications are invited for the following posts in Central Drug Research Institute, Lucknow :

1. Scientist 'C'

Four posts : (Rs. 3000-100-3500-125-4500
Post No. (i) (Medical Mycology)

Ph.D. with 2 years experience in Mycology. Preference will be given to persons with research experience in relation to immunology of fungal infections and **evaluation of potential antifungal drugs in vitro and in experimental animals.**

Job requirements : To study the immunology of human pathological fungi **and to evaluate potential antifungal drugs against human pathogenic fungi**.

Post No. (ii) (Information)

First Class Master's degree in Natural Sciences/Statistics/Mathematics/Economics/Commerce/Operational Research Computer Science.

Experience : Atleast six years experience in planning, monitoring and evaluation and budgeting and cost accounting of R & D projects. **Desirable** : Experience in a biomedical research institution and technical report writing.

Job requirements : To implement modern methods of R & D project management; to advise the management in the formulation, budgeting and cost accounting of R & D projects; to monitor and evaluate projects' technical and financial performance; to prepare technical and annual/five-year plan documents. These assignments require regular interaction with R & D and other technical departments of the Institute, CSIR Headquarter and it's laboratories.

Post No. (iii) (Process Development)

Ph.D. in Organic Chemistry in Chemical Engineering with 2 years experience in Scaling up preparation of Organic Compounds to at least Kilogram Scale.

Job requirements : To provide innovations in synthesis and on Kg. scale or larger of institute's compounds taken up for drug development.

Post No. (iv) (Chemistry)

Ph.D. (Organic Chemistry) with 2 years research experience in the chemistry of natural products/ medicinal chemistry as evidenced by good publications.

Job requirements : To conduct research in the area of biologically active natural products, including marine natural products/synthesis of heterocyclic compounds of biological interest.

2. Scientist's 'B'

Three posts : Rs. 2200-75-2800-EB-100-4000)
Post Nos. (i) & (ii) (One post reserved for S.C.)

Ph.D. (Organic Chemistry). **Desirable** : 2 years research experience in medicinal chemistry which have provided publications of good quality.

Job requirements : To synthesise compounds of biological interest.

Post No. (iii) (Microbiology) (Unreserved)

M.Sc. Ist class or Ph.D. in Zoology/Microbiology. **Desirable** : 3 years research experience, candidates with Ph.D. in any area of Malaria Research will be given preference.

Job requirements : To conduct research in the field of Chemotherapy of Malaria/Development of new experimental models for malaria/gametocytocidal activities/cerebral malaria.

3. Junior Technical Assistant

One post (S.T./General (Rs. 1400-40-1800-EB-50-2300)

B.Sc. with Chemistry as one of the subjects. **Desirable** : Experience in Research/Development of processes for synthetic drug intermediates or chemical process industry.

Job requirement : The incumbent will assist in scale up studies concerned with R & D programme in the field of drug and drug intermediate. Has to work in shift for operation of chemical plants. Has to carryout literature survey and help in preparation of technical reports.

General Conditions

1. All the above posts carry usual allowances as admissible under the rules of Govt. of India. Total emoluments at the minimum and the maximum of the grades including H.R.A. at present are as follows :

Scale	Minimum	Maximum
Rs. 3000-4500	Rs. 4065/-	Rs. 6030/-
Rs. 2200-4000	Rs. 3011/-	Rs. 5330/-
Rs. 1400-2300	Rs. 1867/-	Rs. 3124/-

2. Candidates belonging to S.C./S.T. communities should invariably enclose an attested copy of original caste certificate issued by a competent authority with their application failing which they will not be entitled to the concessions otherwise admissible to them. In the event of non-availability of S.C./S.T. candidates for the post of Scientist 'B' the post will be filled up by general candidates by following the prescribed procedure.

3. Since it is not possible to call all the eligible candidates for the interview, the applications will be shortlisted for the purpose and the decision of the Director will be final.

4. Applicants called for attending interview will be paid single second class rail fare to and fro the actual place of undertaking the journey or from the normal place of residence as mentioned in the application whichever is earlier to Lucknow Railway Station.

5. The prescribed application form may be obtained from the office of the Controller of Administration, Central Drug Research Institute, Chatter Manzil Palace, P.B. No. 173, Lucknow-226001 (U.P.), by sending a requisition duly indicating the post and advertisement number alongwith a self-addressed envelope of viz. 23x10 cm. Any request for application form received after 15.6.88 will not be entertained for supply by post. Application duly completed (supported by the attested copies of certificates and testimonials) alongwith a non-refundable fee of Rs. 10/- (no application fee is prescribed for S.C./S.T. candidates) in the form of crossed Indian Postal Order drawn in favour of the Director, Central Drug Research Institute, Lucknow should reach Director, Central Drug Research Institute, Lucknow on or before **5.7.1988**. Applications received after this date will not be considered.

6. Separate application for each post alongwith requisite postal order in a separate envelope indicating the advertisement number and post applied for should be sent.

7. The candidates in Government/Semi-Government Organisations, Public Undertakings and Autonomous Bodies should route their applications through proper channel.

8. The number of vacancies to be filled may vary at the time of actual selection and due consideration for reservations of posts will be given where necessary.

9. Persons selected for the posts of Scientist 'C' and Scientist 'B' will be appointed on Contract for six years including probationary period of two years. The other posts are temporary but likely to continue year to year basis.

10. The Institute has a system of periodical assessment promotion on merit.

11. The post no. 3 (JTA) is being readvertised 2nd time and is also open for general candidates. The general candidates would, however, be considered only if no suitable S.T. candidates are still available for appointment to the vacancy reserved for them.

12. Canvassing in any form and/or bringing in any influence political or otherwise, will be treated as a disqualification for the post.

Interim Inquiries will not be Entertained.

CLASSIFIED ADVERTISEMENTS

UNIVERSITY OF LUCKNOW

Advertisement No. 2/1988

WANTED

Professors : (Rs. 1500-60-1800-100-2000-125/2-2500 (unrevised)

1. One in Linguistic.
2. One in Ancient Indian History & Arch.,
3. One in Physics.
4. One in Constitutional & Administrative Law.
5. One temporary in English.

Readers : (Rs. 1200-50-1300-60-1900 (unrevised)

6. One in Zoology.

Lecturers : (Rs. 700-40-1100-50-1600-unrevised).

7. Two temporary in Ancient Indian History & Arch.
8. One temporary in Political Science.
9. One in Chemistry.
10. One permanent and one temporary in Botany.
11. One in English.
12. One in Business Administration.
13. One temporary in Physics.

Minimum Qualifications for Professors

Eminent scholarship with published work of high quality and active engagement in research and ten years' experience of teaching or research and experience of guiding research at doctorate level.

OR

Outstanding scholarship with established reputation for significant contribution to knowledge.

Minimum Qualifications for Readers

(a) Good academic record with a doctorate degree or equivalent published work, and active engagement in research or innovation in teaching methods or production of teaching materials; and

(b) Five years' experience of teaching or research including at least three years as Lecturer or in an equivalent position.

Provided that the requirement contained in clause (b) may be relaxed in the case of candidate who in the opinion of the Selection Committee has outstanding research work to his credit.

Minimum Qualifications for Lecturers

(a) A doctorate degree or research work of an equally high standard in a relevant subject; and

(b) Consistently good academic record with first or high second class Master's degree or an equivalent degree of a foreign University in a relevant subject.

GENERAL

Benefits of Provident Fund/Pension available as admissible under the rules. Period of probation for permanent post is one year.

It is not necessary to fill any/all of the advertised posts. Canvassing will be disqualification.

Prescribed application form can be obtained, free of cost, by sending a self-addressed envelope size 23 x 10 cm. with postage stamp worth Rs. 6.00 to cover registration charges, from the office of the Registrar. Last date for submission of application duly completed in all respects with recent testimonials, publication etc. and Bank Draft for Rs. 5/- drawn in favour of the Registrar, Lucknow University (Postal Order or Money Order will not be accepted) payable at any Bank in Lucknow, is **June 24, 1988.**

Application without Bank Draft will not be entertained. Candidates who are in service should send their applications through proper channel. Application form to outstation candidates will be sent upto **June 17, 1988.**

B. M. Singh
REGISTRAR

SANJAY GANDHI POST GRADUATE INSTITUTE OF MEDICAL SCIENCES

P.B. No. 375, Raebareli Road, Lucknow

Advt. No. 20/88

SENIOR RESIDENTS

Applications are invited for appointment of Senior Residents in the following specialities for delivery of hospital services.

Gastroenterology (Medical)	1	Immunology	-1
Gastroenterology (Surgical)	1	Radiology	-2
Nephrology	1	Pathology	-1
Genetics	1	Total	-8

The applicants should possess MD/MS or equivalent recognised postgraduate qualifications in the parent discipline. Candidates with prior experience in the speciality will be preferred.

The recruitment on the posts will be made on All India basis and the emoluments are expected to be the same as at other National Institutes. The initial appointment on these posts will be made upto December, 1988.

The selection test will consist of written examination followed by Practical & Interview and will held on July 18 & 19, 1988 at Institute Campus.

Candidates are required to send their applications on plain paper stating their date of birth, qualifications, experience, names of referees and examination fee of Rs. 200/- (Two hundred only) by a bank draft latest by June 10, 1988. They can apply for only one speciality.

DIRECTOR

UNIVERSITY OF ROORKEE

ROORKEE

No. Estt(A)/3/A-86 (Advt.)-88 **Dated : May 13, 1988**

Applications on prescribed forms, obtainable from the Registrar, either personally or by sending a self-addressed envelope (9'' x 4'') affixed with stamps of Rs. 2.20 paise, are invited for the following posts. Higher starting salary could be offered to candidates based on their qualifications and experience. Applicants should not generally be above the age of 55 years. Candidates in employment are required to send their applications through proper channel. Applications received late/incomplete or without required remittance may not be entertained.

Last date of receipt of applications on prescribed form alongwith application fee of Rs. 10/- (By Bank Draft or Crossed Indian Postal Order in favour of Registrar, University of Roorkee) is **June 15, 1988** and for overseas candidates is July 15, 1988.

(Abbreviations used : R-Regular; TLR-Temporary Likely to be made Regular; T-Temporary).

Sl. No.	Department	Professor (1500-2500)	Reader (1200-1900)	Lecturer (700-1600)
(A)	**ENGINEERING DEPARTMENT**			
1.	Water Resources Development Training Centre.	2R	2R	—
2.	Alternate Hydro Energy Centre	1T	—	—
(B)	**SCIENCES/SOCIAL SCIENCES DEPARTMENT**			
1.	Bio-Sciences & Bio-Technology	1R	—	1R
2.	Humanities & Social Sciences	1R	—	—
3.	Mathematics Department.	—	—	1R
(C)	**OTHER POSTS**			
1.	Deputy Registrar (1000-1900)			1T
2.	University Medical Officer (850-1720)			1R
3.	Programmer, Roorkee University Regional Computer Centre (850-1720)			2T
4.	Scientist 'C', Water Resources Development Training Centre (1100-1600)			1T
5.	Scientist 'B', Water Resources Development Training Centre (700-1300)			1T

(A) QUALIFICATIONS FOR ENGINEERING AND SCIENCES/SOCIAL SCIENCES DEPARTMENTS

U.G.C. prescribed qualifications are applicable. However, these qualifications will not apply to deputationists whose suitability for the posts will be judged on the basis of experience and accomplishments.

(B) SPECIALISATIONS

1. Water Resources Development Training Centre

For Professor (Civil)—1 : Planning and Design of Hydro Power Stations.

For Professor Design (Hydro Electric)—1 : Hydro Electric Generation and Transmission.

For Readers— 1 : Electrical Engineering with Specialisation in Hydro Electric Generation and Transmission,

1 : Agricultural Engineering with Specialisation in Water Management/Irrigation Engineering/Water Conservation.

2. Alternate Hydro Energy Centre

For Professor in Energy Technology (Under the Chair Created by State Bank of India)—1

Experience with background of the energy resource perspective and understanding of the technological possibilities for developing appropriate technologies particularly for rural development.

3. Bio-Sciences & Bio-Technology

For Professor — 1 : Molecular Biology/Biotechnology/Genetic Engineering/Microbiology.

For Lecturer — 1 : Biochemistry/Environmental Biology/Toxicology/Plant Pathology/Microbiology/Molecular Biology/Physiology.

4. Humanities & Social Sciences

For Professor — 1 : Management

5. Mathematics Department

For Lecturer — 1 : Statistics

(C) QUALIFICATIONS FOR OTHER POSTS

1. Deputy Registrar—1 :

Essential (a) A good Master's degree in any field of Arts, Science or Commerce or a Bachelor's degree in Engineering, (b) Not less than 7 years administrative/academic experience, (c) A good knowledge of Hindi and English.

Desirable (a) A degree in Law or Business Administration.

(b) Administrative experience in a University or other Educational Institutions in a responsible capacity.

2. University Medical Officer (Lady Medical Officer) — 1R

Essential M.B.B.S. with 3 years experience

Desirable M.D. or P.G. Degree/Diploma in Obstetrics and Gynaecology/Medicine/Paediatrics

Note She shall be required to do general duty in the hospital in addition to work in her field of specialisation.

3. Roorkee University Regional Computer Centre

For Programmers — 2

Essential Master's or P.G. Diploma in Computer Tech./or Master's Degree in Engineering/or Ph.D. in Science. Specialised experience in Computer software.

Experience Atleast one year's experience in Computer software. Working knowledge of higher level/assembly language.

4. Water Resources Development Training Centre (Against WRM Centre)

For Scientist 'C' — 1 : Master's Degree in Civil/Agr. Engg./Water Resources Development/Water use Management/or Ph D. in Science and consistently good record with 1st Class atleast at Master's or Bachelor's degree level. 4 Years experience after obtaining Master's Degree in research/design/teaching in Water Resources or allied field.

Specialisation—Water Resources/Water Use Management/Hydrology/Computer application in Water Resources/areas or emerging technology like micro computers, data processing and remote sensing.

Note : Requirement of Ph.D. degree in case of Science disciplines may be relaxed for otherwise highly experienced candidates.

For Scientist 'B' — 1 : 1st Class Bachelor's degree in Civil Engineering.

Desirable (a) Post-Graduate Diploma/Degree in Water Resources/Computer Science or allied field.

(b) Experience in application of Computer in Water Resources or allied fields.

NOTE :

1. Number and nature of posts shown above may change at the time of selection.
2. Only Indian Nationals need apply.
3. Preference will be given to Scheduled Caste/Scheduled Tribes candidates who considered fit.

REGISTRAR

S.N.D.T. WOMEN'S UNIVERSITY

1, NATHIBAI THACKERSEY ROAD
BOMBAY-400 020

Advertisement No. 11 **Dated : May 11, 1988**

Applications are invited in the prescribed forms available at the University Office between 10-30 a.m. to 1.00 p.m. and 1.30 p.m. to 2.30 p m. from Monday to Friday and 10.30 a.m. to 12 00 Noon on Saturday, on payment of Rs. 5/- (M O /in Cash) for the following posts, to be filled in at the University Departments and its conducted Institutions at Bombay and Poona, so as to reach the undersigned **on or before fifteen days** from the date of its advertisement. Please collect details of the posts from the counter alongwith application form.

Sr. No.	Post and Name of the Dept./Institution	Total Post	Post under Open Category	Post under Reserved Category	Medium of Teaching
A	**Centre of Education at PVDT College of Education, Bombay-20**				
1.	Lecturer in Education	ONE	ONE	—	MAR/ENG
2.	Lecturer in Education	ONE	ONE	—	GUJ/ENG
*3.	Jr. Library Assistant	ONE	—	ONE (2nd Time Adv.)	—
	Under P.G. Dept. of Language Teaching				
4.	Head & Reader in Language Teaching	ONE TMP (Likely to be Perm.)	ONE TMP (Likely to be perm.)	—	ENG/MAR/GUJ
5.	Lecturer in Language Teaching	ONE	ONE	—	ENG/MAR/GUJ
B	**P.V.D.T. College of Education for Women, Bombay-20**				
1.	Lecturer in Education (Teaching methods in English/Hindi/Gujarati)	TWO	TWO	—	GUJ/ENG
2.	Lecturer in Education (Teaching Methods in Marathi/Geography)	ONE	ONE	—	MAR/ENG
C	**Dept. of P.G. Studies and Research in Home Science at SVT College of H.Sc., Bombay-49**				
	Under PG Dept. of Family Resource Management Under DRS Programme				
1.	Technician (Jr.)	ONE TMP TENURE	ONE TEP TENURE	—	—
	Under P.G. Dept. of Textile & Clothing				
2.	Reader in Textile & Clothing	ONE	ONE	—	ENG/MAR/GUJ
D	**Research Centre on Women's Studies, SNDT Women's University, Bombay-49**				
1.	Reader	ONE	ONE	—	ENG/MAR/GUJ
E	**Dept. of Continuing & Adult Education & Extn. Work, Bombay-20**				
	Under Population Education Resource Centre (PERC-Temp. Tenure-period upto March 1990)				
1.	Project Officer	ONE TMP TENURE	ONE TMP TENURE	—	—
2.	Technical Assistant	-do-	-do-	—	—
F	**SNDT Arts & Commerce College for Women, Poona**				
*1	Lecturer in Commerce	THREE TMP	ONE TMP	TWO TMP SC/ST (First time Adv.)	ENG/MAR
*2	Lecturer in Psychology	ONE	—	ONE (3rd time adv.)	ENG/MAR

Sr. No.	Post and Name of the Dept./Institution	Total Post	Post under Open Category	Post under Reserved Category	Medium of Teaching
	Under Dept. of Post Graduate Studies & Research, Poona				
3.	Lecturer in Art & Painting	ONE	ONE	—	ENG/MAR
*4.	Lecturer in Economics	ONE	—	ONE (2nd time Adv.)	ENG/MAR
G	**SNDT Arts & C.B. College of Commerce & Economics, Bombay-20**				
*1.	Lecturer in History	ONE	—	ONE (4th time Adv.)	MAR/ENG
2.	Lecturer in Accountancy	ONE Part Time	ONE Part Time	—	ENG
3.	Lecturer in Statistics	ONE	ONE	—	ENG
4.	Lecturer in Economics	ONE Part Time	ONE Part Time	—	ENG
H	**Dept. of Special Education, Bombay-49**				
1.	Extension Programme Co-Ordinator	ONE	ONE	—	ENG
2.	Lecturer	ONE	ONE	—	ENG
3.	Supervisor (in the Lecturer's Scale)	ONE	ONE	—	ENG
4.	Research Associate	ONE	ONE	—	ENG
I	**SNDT Women's University & its Institutions, Bombay**				
1.	Typist	As Required by University		—	—
	Under Dept. of Correspondence Courses, Bombay-49				
*2.	Jr. Clerk	THREE	TWO	ONE DT/NT	—
	Under Examination Dept.				
*3.	Jr. Clerk	ONE	—	ONE ST	—
	Under SNDT College of Arts & C.B. College of Commerce & Economics Bombay-20				
*4.	Jr. Clerk-cum-Typist	ONE	—	ONE SC	—
	(The panel of suitable candidates will be made for Permanent/Temporary appointments at University & its institutions for post No. I-1, I-2, I-3 & I-4)				
J	**Dept. of Post-Graduate Studies & Research, Bombay-20**				
	Under P.G. Dept. of English				
1.	Lecturer in English	ONE	ONE	—	ENG
K	**SNDT Women's University Bombay-20**				
	Under A/c Dept.				
1.	Assistant Cashier	ONE	ONE	—	—
L	**Dept. of Reservation Cell, SNDT Women's University Office, Bombay-20 (Temporary Tenure-Period upto March 1990)**				
*1.	Sr, Clerk (Statistics)	ONE TEMP TENURE	—	ONE TEMP TENURE	—
*2.	Jr. Stenographer	-do-	—	-do-	—

Minimum qualifications, salary scales, etc. of the teachers are as per approved UGC scales and qualifications. Applications of Scheduled Castes/Scheduled Tribes/Nomadic Tribes/DT, will be considered as per. Government Directives. *Indicates post under reserved category and will be filled by SC/ST/DT/NT candidates only. Incomplete applications & applications on a plain paper will not be considered. Applicants (Local) are advised to submit their application forms (duly filled in) alongwith three copies of certificates, to Inward Clerk, Stores Department, University Office, Bombay-20 within time scheduled.

REGISTRAR

UNIVERSITY OF DELHI

DELHI-110007

No. Estab. IV/113/88 **Dated : 16th May 1988**

Applications in the prescibed form are invited for the following posts :

S.No.	Department	Post	No. of Vacancies	Special/Desirable Qualifications (if any)
1.	**Faculty of Arts**			
	Buddhist Studies	Reader	One	Any of the following : (a) Pali Language and Literature; (b) Buddhist Sanskrit Language and Literature ; (c) History of Buddhism in India & abroad (including Art, Architecture, Iconography and Epigraphy); (d) Buddhist Philosophy ; (e) Classical Chinese Buddhist Language & Literature; (f) Tibetan Language and Literature.
		Lecturer in Chinese Language & Literature	One	(a) Knowledge of Sanskrit/Pali/History of Buddhism/Buddhist Philosophy/Traditional & Buddhist History and Philosophy of China/Tibetan Language and Literature. (b) Teaching experience in Postgraduate Courses and standard publishad work. (c) Working knowledge of Modern Chinese Language.
2.	Hindi	Reader	One	
		Lecturer	Four	**For one post :** Experience of Translation, Experience of Teaching, Good knowledge of English. **For 2nd post :** Sound knowledge of the principles of Translation.
3.	Linguistics	Professor	One	Theoretical Linguistics.
		Reader	One	Experimental Phonetics/Computational Linguistics.
		Lecturer	Two	**Ist Post :** Historical Linguistics and Indian Grammatical Tradition. **2nd Post :** Applied Linguistics.
4.	Library and Information Science	Lecturer	One	—
5.	Modern European Languages	Reader in Italian	One	Specialisation in Literature
		Lecturer in Swedish	One	—
		Lecturer in Italian (Temporary upto Aug. '89)	One	—
		Lecturer in French (One Temporary upto Aug. '89) (One Temporary upto Jan. '91)	Two	—
6.	Philosophy	Reader	One	Dharmashastra
7.	Sanskrit	Lecturer	One	—

1	2	3	4	5
8.	Slavic Studies	Lecturer (Part Time in Russian)	One	—
9.	Urdu	Reader	One	—
		Research Associate	One	—
		*Lecturer (One Permanent & one temporary upto Oct. '89)	Two	—
II.	**Faculty of Science**			
1.	Chemistry	Reader	Two	**For one post :** Inorganic Chemistry
		Lecturer	One	Organic Chemistry
		Research Associate	Three	One each in Organic, Inorganic and Physical Chemistry.
2.	Geology	Reader	One	Structural Petrology, Igneous Petrology, Metamorphic Petrology, Hydrogeology and Remote sensing.
3.	Physics and Astrophysics	*Research Associate	Four	Either experimental or theoretical Physics.
4.	Zoology	Research Associate	One	Cell and Developmental Biology, Insect Physiology and Toxicology and Reproductive Endocrinology.
III.	**Faculty of Social Sciences**			
1.	Chinese and Japanese Studies	Lecturer in Japanese Language	One	Familiarity with Modern and Audiovisual Methods of teaching Japanese Language.
2.	Economics	Reader	Four	—
		*Research Associate	Three	—
3.	Geography	Reader	One	—
4.	History	Lecturer (Temporary upto Aug. '89)	One	Medieval Indian History with ability to teach History of Medieval West Asia.
5.	Political Science	*Professor	One	**Specialisation :** Political Theory **Desirable :** Contemporary Philosophical Analysis and Political Theory/Liberal Political Thought / Socialist / Political Thought / Western Political Thought/Indian Political Thought/Third World Political Thought.
		Reader	One	Public Administration
		Lecturer	One	Pakistan Studies
6.	Sociology	Professor	One	—
		Lecturer	One	(a) Sociology of Development including Agrarian Structure and Sociology of Movements. (b) Sociology of Science, Technology and Medicine. (c) Population and Migration Studies and Quantitative Methods, (d) Sociology of Cognition, knowledge and education. (e) Historical Sociology and Comparative Ethnography.

1	2	3	4	5
7.	Social Work (For NSS Training Orientation and Research Centre)	*Lecturer-cum-Community Organiser	One	Advanced course in Research Statistics and work experience on research/evaluation projects/youth work.
IV.	**Faculty of Mathematical Sciences**			
1.	Computer Science	Professor	Two	—
		Lecturer	Two (One Temporary Upto Nov. '88)	—
2.	Mathematics	Reader	One	Commutative Algebra/Algebraic-Geometry/Algebraic Topology.
		Lecturer	One	Differential Equation/Numerical Analysis/Probability Theory.
3.	Operational Research	*Lecturer	One	—
4.	Statistics	Lecturer (Temporary upto 3.12.88)	One	—
V.	**Faculty of Education**			
		Reader	Two	**First post :** Economics of Education or Educational Policy and Planning or Educational Technology. **Second post :** Business Education/Methodology of Educational Research/Elementary Education.
VI.	**Faculty of Law**			
1.	Campus Law Centre	Lecturer	One	—
2.	Law Centre—I	Lecturer	One	—
		Part-time Lecturer	Five	—
3.	Law Centre—II	Part-time Lecturer	Two	—
VII.	**Faculty of Management Studies**			
		*Professor	One	Specialization in Accounting, Finance, Computer and MIS
		*Reader	Three	**Ist Post :** Personnel Management and Industrial Relations. **IInd Post :** Organisation Development. **IIIrd Post .** Marketing Management.
		Lecturer (3 Permanent & 4 Temporary)	Seven	**For permanent posts :** **Ist post :** Marketing Management. **2nd post :** Personnel Management. **3rd post :** General Management. **For Temporary Posts :** **Ist post :** Industrial Relations and Labour Legislation. **2nd post :** Organisational Behaviour and Organisational Development. **3rd post :** Production Management and Material Management. **4th post :** Financial Management and Management Accounting.

1	2	3	4	5
	S.P. Jain Advanced Centre of Management Studies.	*Research Associate	Two	Demonstrative ability and experience of working in Projects undertaken/to be undertaken by the Faculty.
VIII.	**Faculty of Music & Fine Arts**			
	Deptt. of Music	Reader	Two (1 Karnatak Music-Instrumental —Venna, Violin)	Good performing ability wilh a comprehensive repertoire of traditional ragas and forms.
			(1 Hindustani Music—Instrumental)	-do-
		Lecturer	Four (1 each in Veena, Violin, Dhrupad & Vocal) (Vocal—Temporary upto 24.11.89)	Hindustani Music and knowledge of Sanskrit.
IX.	**Delhi University Library System**			
		*Professional Junior	Two	**For one post :** Should have good knowledge of various journals and books dealing with management and business administration.
X.	**Central Office**			
		Assistant Registrar/Administrative Officer/Asstt. Controller of Examinations	Panel to be formed	

* Those who had applied for any of the above posts in response to our earlier advertisements need not apply again. They may supply additional information, if any.

Scales of Pay for the Posts are :

Professor	Rs. 4500-150-5700-200-7300	Revised
Reader	Rs. 3700-125-4700-150-5300/5700 (Prov.)	
Lecturer/Lecturer-cum-Community Organiser.	Rs. 2200-75-2800-100-4000	
Professional Junior/Asstt. Registrar/Admn. Officer/Asstt. Controller of Exams.	Rs. 700-40-1100-50-1600 (Pre-revised).	
Part-time Lecturer	(i) Rs. 1000/- p.m. (fixed) for work load ranging from 4 to 6 hours per week. (ii) Rs. 1500/- p.m. (fixed) for work load ranging from 7 to 10 hours per week.	
Research Associates	A : Rs. 1400/- p.m. fixed B : Rs. 1600/- P.m. fixed C : Rs. 1800/- p.m. fixed D : Rs. 2000/- p.m. fixed	(Pre-revised) On the recommendation of the Selection Committee.

Essential Qualifications for

Professorship : An eminent Scholar with published work of high quality actively engaged in research. Ten years' experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

Readership : Good academic record with at least second class Master's degree in a relevant subject with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.

5 years experience of teaching of undergraduate/post-graduate classes and/or post-doctoral research work with evidence of published work.

Note : Second class would mean at least 50% marks in the subject or equivalent grade.

Lecturership : (Other than those in Foreign languages, Music, Management Studies, Law, Part-time Lecturers in Law and Lecturer-cum-Community Organiser).

(a) A Doctorate degree or research work of an equally high standard; and

(b) Good academic record with at least second class (C in the seven point scale) Master's degree in a relevant subject from an Indian University or an equivalent degree from a foreign University.

Having regard to the need for developing inter-disciplinary programmes, the degree in (a) and (b) above may be in relevant subjects.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax the requirement of "at least second class in Master's degree examination" in terms of level achieved at the said examination as prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing good academic record (weightage being given to M.Phil. or equivalent degree or research work of quality) may be appointed on the condition that he will have to obtain a Doctor's/M. Phil. degree or give evidence of research of high standard within fourteen years or till he reaches the stage of Rs. 3400 in the pay-scale, whichever is earlier, from the date of his appointment failing which he will not be able to earn future increments until he fulfils these requirements.

Explanation :

1. For determining 'good academic record' the following criteria shall be adopted :
   (i) A candidate holding a Ph.D./M.Phil. degree should possess at least a second class Master's degree; or
   (ii) A candidate without a Ph.D/M.Phil. degree should possess a high second class Master's degree and second class in the Bachelor's degree; or
   (iii) A candidate not possessing Ph.D/M.Phil. degree but possessing second class Master's degree should have obtained first class in the Bachelor's degree.
2. Persons having secured at least 55% marks or more shall be deemed to have passed the examination in the high second class.

Lecturership in Italian, French, Swedish, Japanese Languages and Part Time Lecturership in Slavic Studies

(a) A Doctor's degree or research work of an equally high standard; and

(b) Good academic record with at least second class (C in the seven point scale) Master's degree or M.Phil degree from an Indian University or an equivalent degree from a foreign University. Having regard to the need for developing interdisciplinary programmes, the degrees in (a) and (b) above may be in relevant subjects.

Provided that if the Selection Committee is of the view that the Research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in (a) and (b) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a good academic record may be appointed on the condition that he will have to obtain a Doctor's/M.Phil degree or give evidence of research work of equivalent high standard within fourteen years of his appointment failing which he will not be able to earn future increments until he fulfils these requirements.

Explanation :

1. For determining 'good academic record' the following criteria shall be adopted :
   (i) A candidate holding a Ph.D./M.Phil. degree should possess at least a second class Master's degree; or
   (ii) A candidate without a Ph.D./M.Phil. degree should possess a High Second class Master's degree and second class in the Bachelor's degree; or
   (iii) A candidate not possessing Ph.D./M.Phil. degree but possessing second class Master's degree should have obtained first class in the Bachelor's degree.
2. Persons having secured at least 55% marks or more shall be deemed to have passed the Examination in the High Second Class.

Lecturership in Management Studies

A Master's degree in Business Administration or M. Tech. in Engineering with first class with the provision that the incumbent would acquire a doctorate degree within a period of fourteen years.

In the case of allied subjects like Industrial Psychology, Personnel Management, Business Statistics, Cost Accountancy etc. where Lecturers are required to be recruited with qualifications other than M.B.A. or M. Tech. the minimum qualifications shall be the same as prescribed for the Faculties of Arts, Social Sciences including Commerce and Sciences.

Lecturership in Music

(a) Good academic record with at least second class (C in the seven point scale) Master's degree in a relevant subject or an equivalent degree or diploma recognised by the University; and

(b) Two years research or professional experience or evidence of creative work and achievement in the field of specialization or a combined research and professional experience of three years in the field as an artist of outstanding talent.

OR

A traditional or a professional artist with highly commendable professional achievement in the subject concerned.

Lecturership in Law

Good academic record with at least second class (C in the seven point scale) Master's degree in Law from an Indian University with the relevant specialization or equivalent degree from a foreign University.

Part Time Lecturership in Law

Must be enrolled as an advocate of a High Court and should have actually practised at the bar for not less than five years.

Lecturer-cum-Community Organizer

Good academic record with a first or high second class Master's degree in Social work or an equivalent degree of a foreign University (second class would mean atleast 50% marks in the subject or equivalent grade).

Research Associate

Consistently good academic record with first or high second class (B^+) Master's degree or an equivalent degree of a foreign University in the subject concerned.

Note : Initial appointment will be for a tenure period of 3 years extendable by another 2 years only. In no case the tenure wiil extend beyond 5 years in all

Professional Junior

(a) Good academic record with at least a high second class Master's degree in a subject other than Library Science.
(b) Master's degree in Library Science with first class or high second ciass.

Assistant Registrar/Administrative Officer/Assistant Controller of Examinations

(a) A Master's degree or LL.B. or Post-graduate diploma of two years' duration in any of the fields in Public Administration/Management/Computer Application of a recognised University or its equivalent.
(b) At least three years' experience in supervisory or equivalent Cadre in a University, Educational or Research Institution.
(c) Those who have teaching or research experience alongwith proven administrative capabilities are also eligible to apply.

The candidates will be required to appear in a written test to adjudge their ability of expression and knowledge of the administrative aspects relating to educationai administration, the selection being based on the performance of the candidates in written test and the interview.

The prescribed application forms can be had from the Room No. 205, Estab. IV. Section of the University either personally or by sending a self-addressed envelope (size 13 cm x 28 cm) with postage stamps worth Rs. 6/-.

The candidates will have to produce the original documents relating to their age, qualifications, experience etc. at the time of interview.

Applications (separate for each post) accompanied by attested copies of Degrees. other certificates, marksheets, published research articles etc. should be addressed to the Registrar. The last date prescribed for receipt of the application **is 13th June, '88.**

Note :
1. It will be open to the University to consider names of suitable candidates, who may not have applied. Relaxation of any of the qualifications may be made in exceptional cases, in respect of all the posts on the recommendations of the Selection Committee.
2. Canvassing in any form by or on behalf of the candidate will disqualify,
3. Candidates from outside Delhi when called for interview will be paid to and fro single seeond class rail fare.
4. The University reserves the right not to fill up any of the vacancies advertised if the circumstances so warrant.

Madan Mohan
REGISTRAR

TATA INSTITUTE OF SOCIAL SCIENCES

DEONAR, BOMBAY 400 088

No. Admn. Advt./88

Dated : May 17, 1988

Applications are invited for the following posts. The prescribed application form, alongwith the details of qualifications, experience, etc., prescribed for the posts, should be obtained either in person or by post by sending an application for the same to the above address alongwith a stamped (Rs. 2.00) self-addressed envelope superscribed "REQUEST FOR APPLICATION FORM FOR TEACHING POST."

1. **Reader (One post)** in the Department of Extra Mural Studies, having good academic record, M.A. degree in Social Work with 55% of the marks and a doctoral degree, and experience in conducting short-term programmes and/or continuing education. Candidates should be willing to work in the evening. Scale of Pay of Rs. 3700-125-4700-150-5300.

2. **Lecturer (Five posts)** in the Scale of Pay of Rs. 2200-75-2800-100-4000 : **One Post in the Department of Extra-Mural Studies,** having a degree in medicine with a post-graduate degree in Community Health/Diploma in hospital administration or a Postgraduate degree (with 55% marks) in Management or Social Sciences/Social Work with a Diploma in Hospital Administration or M. Phil/Ph.D. degree in the field of health/hospital administration. **The post is reserved for SC candidates.** In case suitable SC candidates are not available, general candidates will be considered, as the post will then be treated as a de-reserved post; **One post in the Department of Medical and Psychiatric Social Work** having M.A. degree in Social Work (with 55% of the marks) having specialisation in MPSW and/or work experience in the field. **The post is reserved for SC candidates only; One post in the Department of Criminology**

and Correctional Administration, having M.A. degree in Social Work (with 55% of the marks) having specialisation in Criminology and Correctional Administration or field work and/or work experience in the field. **The post is reserved for SC candidates.** In case suitable SC candidates are not available, applicants from other categories may be considered for appointment on a temporary basis for a period of six months, extendable to another six months, beyond which, if no SC candidate applies, the person in the general category may be placed on probation provided that the Selection Committee finds him/her suitable for appointment against the de-reserved post; **One post in the Department of Family and Child Welfare**, having M.A. degree in Social Work (with 55% of the marks) having specialisation in Family and Child Welfare or field work and/or work experience in the field; **One post in the Research Unit for Family Studies**, having M A. degree in Social Work (with specialisation/field/work experience in the area of the family)/Sociology (with special papers or research work in the area of the family)/Home Science with specialisation in family studies. (with 55% of the marks). **The post is reserved for SC candidates only.**

The last date for receipt of filled in application is 20-6-1988.

N. Krishnamoorthy
REGISTRAR

MADURAI KAMARAJ UNIVERSITY

Palkalainagar, Madurai-625021

Admission to M.Sc. Computer Science (Software) Course 1988-90 (R/16/88)

Sponsored by Defence Research and Development Organisation (DRDO)

Ministry of Defence,Government of India

Applications are invited for appearing for the entrance test to be held on 9-7-1988 for the above course. After successful completion of the course as per DRDO guidelines, the candidate shall be eligible for appointment in Defence Research and Development Service as a Class I Officer.

No. of Seats : 35 (Thirty five)

Qualification : First Class B.Sc. with main in Mathematics/Physics/Computer Science/Electronics from a recognised Indian University or equivalent degree. Relaxation of 5% marks for S.C. and S.T. candidates is permissible.

Age : Not over 23 years on 1st August, 1988. Those born earlier than 01/08/65 are not eligible to apply.

Course Duration : Two years.

Financial Assistance : Rs. 800/- per month.

Medical Fitness : Admission is subject to medical fitness as prescribed for Class I Central Government Service.

Bond : A Bond for serving DRDO for a minimum period of 5 years immediately after the successful completion of the course, that is securing atleast 60% marks in the University Examination.

Reservation : Subject to availability of suitable candidates, 15% of the seats for S.C. and 7.5% of the seats for S.T. candidates are reserved.

Application form : Application form and prospectus may be obtained from the office of the Registrar, Madurai Kamaraj University on all working days between 10 a.m. and 4 p.m. against crossed Bank Draft drawn in favour of the Registrar, Madurai Kamaraj University payable at Madurai or a State Bank of India challan remitted into Account No. 1 of Madurai Kamaraj University for Rs. 50/- (for SC & ST candidates Rs. 30) OR by sending a crossed bank draft/State Bank of India challan for Rs. 50/- (for SC & ST candidates, Rs. 30/-) alongwith a self addressed unstamped envelope (30 x 17) to the Registrar of this University.

Last date for issue of application forms : 16-6-1988.
Last date for receipt of filled in applications : 23-6-1988.

The entrance test will be conducted at Madurai, Madras and Bangalore.

Note :
1. The candidates who are appearing for the final year of the B.Sc. Examination may also apply. However, they will have to submit their final year marksheet, in original, at the time of interview. Otherwise, their candidature will be rejected.
2. S.C./S.T. candidates should send a xerox copy of their community certificate while sending their requisitions for the application form.

Dr. T. Sivasankaran
REGISTRAR

MAHARSHI DAYANAND UNIVERSITY

ROHTAK

Advertisement No. 2/88

Applications on prescribed form are invited for the following posts :

1. **Professors :** Mathematics—(One), Physics (one), Business Management (one), Music (one-Instrumental), Commerce (two), Computer Science (one) and Military Science (one).

2. **Readers :** Geography (one), English (one), Music (one-Vocal), Education (two), Psychology (one), Sociology (one), Bio-Science (one), History (one) and Journalism and Mass Communication (one).

3. **Lecturers :** Commerce (one), Economics (two) (one against leave vacancy), Business Management (two), Sociology (one), Journalism and Mass Communication (one), Psychology (one), Sanskrit (one), Mathematics (two), Law (three), History (one) and Computer Science (one).

Regional Centre, Rewari

Professor Director : (one) Qualification as prescribed for the post of a Professor. Preference may be given to those having sufficient administrative experience.

Readers : English (one), Commerce (one), Mathematics (one) and History (one).

Lecturers : English (two), Commerce (two), Mathemalics (two) and History (two).

Field of Specialisation

Professor in Mathematics : Pure Mathematics/Applied Mathematics/ Mathematical Statistics.

Professor in Physics : Theoretical Physics.

Professor in Business Management : Finance/Behavioural Sciences and General Business area/Operations Research/ Marketing.

Reader in Geography : Research specialisation in any Branch of Social/Human Geography from a Political Economy perspective, or in quantitative Physical Geography Preference shall b given to candidates with specialised knowledge of an experience of teaching Post-graduate classes in advance (quantitative techniques).

Reader iu English : Contemporary Criticism/Continental Literature/Contemporary British Literature/Linguistics/Indo Anglian Literature/American Literature.

Reader in Education : Educatoinal Planning and Administration/Curriculum Development and Education Technology/Guidance and Counselling/Dynamics of Mental Health/Recurrent Education/Measurement and Evaluation Research Methods and Designs.

Reader in Psychology : Comparative Psychology (Biochemical basis of Memory)/Child Development/Selective Listening.

Reader in Sociology : Rural Sociology/Social Movements/Inter Group Relations.

Reader in Bio-Sciences : Plant Sciences.

Reader in History : Studies in Archaeology and History of Haryana, Social and Economic History of Modern India.

Lecturer in Commerce : Management Accountancy/Accounting/Law and Practice of Banking in India/Rural Economics and Development/Bank Management.

Lecturer in Business Management : Marketing/Finance/Production & Quantitatives/Personnel/Computer.

Lecturer in Psychology : Environmental/Industrial and Organisational/Community Psychology/Behaviour Genetics.

Lecturer in Sanskrit : Sanskrit Grammer/Indian Philosophy.

Lecturer in Mathematics : (i) Pure mathematics

(ii) Applied Mathematics.

(For other posts no specialisation is prescribed).

B. Ed. Correspondence Cell

Coordinator : (one) (Fixed salary of Rs. 4500/- p.m.)

Lecturers : (two) (One year tenure for these posts)

Qualifications

Coordinator : As prescribed for the appointment of Principal in a College of Education. Person with sufficient administrative experience in Educational Institution(s) or a retired Principal of a College of Education will be preferred.

Lecturer : As prescribed by the U.G.C. for appointment in a college of Education.

University College, Rohtak (Morning Shift)

Lecturers : English (three), Hindi (one), Geography (one), Chemistry (four), Physics (five), Psychology (two), Botany & Zoology (one) and Sociology (one).

Evening Shift

Lecturers : Economics (one) and Urdu (one).

Non-Teaching Posts :

1. **System Manager (Rs. 1100-1600)** (UGC).

Qualifications : Master's level degree in Computer Technology of Electronics with specialisation in Computer hardware, with experience.

2. **System Engineer** (Rs. 1100-1600) (UGC).

Qualifications : Master's level degree in Computer Science with specialisation in software Engg. with experience.

3. **Programmer** (two) (Rs. 700-1300) (UGC).

Qualifications : 1. Master's/Bachelor's level degree in software engg.
2. Master's level in the applications area.

4. **Computer Operator :** (Rs. 425-700) (UGC).

Qualifications : Bachelor's level in Science.

5. **Key Punch Operator** : (Rs. 260-400) (UGC).

Qualifications : High School.

U.G.C. qualifications and pay scales for all categories of the teaching posts. Other allowances and benefits of Contributory Provident Fund for all teaching and non-teaching posts admissible as per University Rules. Higher start admissible in deserving cases. Knowledge of Hindi essential for all posts. Number of posts is liable to be increased or decreased.

The applications will be screened by the Committee to be appointed by the Vice-Chancellor. The Screening Committee will be competent to screen applicants and classify them on the basis of qualifications and experience and call for interview only the selected candidates.

Reservation for Ex-servicemen/B.C./S.C./S.T. candidates as per rules. However, where the candidates under reserved categories are not available, the posts will be filled from amongst the general category's candidates.

Applications for the teaching posts are to be submitted on the form prescribed for Class 'A' Officers and for the non-teaching posts on the form prescribed for other than Class 'A' Officers, alongwith attested testimonials and crossed Postal Order(s) for Rs. 10/- drawn in favour of the Finance Officer, M.D. University, Rohtak, payable at the Post Office, Rohtak. Applications (through proper channel from those in employment) complete in all respects should reach the Assistant Registrar (Estt. Teaching), M.D. University, Rohtak by **20-6-88.** The application form can be had from the Press Manager, M.D. University, Rohtak on payment of Rs. 2/- at the counter and Rs. 3/- by ordinary post.

REGISTRAR

"सबसे बड़ा शिक्षण चारित्र्य-निर्माण है"
—महात्मा गांधी

गुजरात विद्यापीठ :

अहमदाबाद-380014

शैक्षणिक सत्र 1988-89 में प्रवेश प्राप्त करने के लिए आवेदन

1. ग्रामसेवा महाविद्यालय :—श्री महादेव देसाई ग्राम-सेवा महाविद्यालय, सादरा : जि० अहमदाबाद : तथा रांधेजा : जि० गांधीनगर . में महात्मा गांधी के आदर्शो के अनुसार कार्यकर्ता तैयार करने के लिए "समाज-विद्या विशारद" की बी.ए. के समकक्ष पदवी के लिए कक्षा 12 के पश्चात् तीन

वर्ष के लिए नए अभ्यासक्रम के नए सत्र का प्रारंभ 15 जून 1988 से होगा। गांधी नगर जिले के रांधेजा गांव में लड़कियों के लिए और अहमदाबाद जिले के सादरा गांव में लड़कों के लिए की गई अभ्यासक्रम-व्यवस्था में नए शैक्षणिक वर्ष से प्रथम वर्ष में प्रवेश प्राप्त करने के लिए उच्चतर माध्यमिक कक्षा-12 अथवा उसके समकक्ष परीक्षा दी हो। प्राथमिक अध्यापन मंदिर, व्यायाम, आई. टी. आई. अथवा चित्र-शिक्षक की दसवीं कक्षा के बाद की दो बर्ष की तालीम अथवा प्रि. युनिवर्सिटी की परीक्षा में उत्तीर्ण हों, ऐसे भाई-बहन प्रवेश प्राप्त करने के लिए परिणाम से पहले भी अर्जी कर सकते हैं। बौधिक अभ्यासक्रमों के उपरांत भाईयों के लिए मुख्य विषय के रूप कृषि विज्ञान और गौण विषय के रूप में पशुपालन, अम्बर यंत्र विज्ञान तथा बहनों के लिए मुख्य विषय गृह विज्ञान और गौण विषय में अम्बर जैसे उत्पादक कार्य की तालीम लेना अनिवार्य है। अंतिम तीसरे वर्ष में ग्राम्य विस्तार की किसी संस्था में वर्षभर कार्य करना होगा। और ग्राम्य विस्तार के प्रत्यक्ष कार्य पर आधारित "शोध-निबंध" लिखना होगा। छात्रालय जीवन सबके लिए अनिवार्य है और उसका भी मूल्यांकन किया जायेगा।

2. ग्राम व्यवस्थापन और ग्राम विकास पारंगत (मास्टर ऑफ रूरल मेनेजमेन्ट और रूरल डेवलेपमेन्ट) तथा गृहविज्ञान पारंगत : उपर्युक्त विषय का पारंगत : एम.ए. : कक्षा का दो वर्ष का नया अभ्यासक्रम जून 1988 से सादरा पंचायत राज केन्द्र में शुरू होगा। इसमें उन लोगों को प्रवेश मिल सकेगा जिनके पास समाज-विद्या सम्बन्धी किसी विषय में द्वितीय श्रेणी की बी.ए. और समकक्ष डिग्री होगी। छात्रालय जीवन अनिवार्य रहेगा। इसी प्रकार गृह-विज्ञान पारंगत (एम.ए., होम सायंस) का पूरे समय का दो वर्ष अभ्यासक्रम रांधेजा में शुरू किया जाएगा।

3. महात्मा गांधी परिसर, अहमदाबाद, अनुस्नातक (पोस्टग्रेज्युएट) अभ्यासक्रम : 1. गुजराती भाषा शास्त्र सहित और 2. हिन्दी (प्रशासन की हिन्दी सहित) 3. इतिहास और संस्कृति तथा दफ्तर विज्ञान। (आर्काइव्ज)। 4. समाज-मानवशास्त्र (सोश्यल ऐन्थरोपोलोजी)। 5. ग्राम अर्थशास्त्र (रूरल इकोनोमिक्स)। 6. गांधीविचार। 7. प्रौढ़ शिक्षण और जनसंख्या शिक्षण दो वर्ष का पूरे समय का तथा स्वाध्याय पद्धति का साप्ताहिक वर्गों का पारंगत (एम.ए.), 8. जिसकी मातृभाषा कन्नड़, मलयालम तथा सिंधी है उनके लिए मातृभाषा के भाषा साहित्य में पारंगत (एम.ए.) के लिए रविवार के वर्ग रखे जायेगे। 9. समाजलक्षी पारंगत (ग्रामलक्षी) दो वर्ष के अनुस्नातक अभ्यासक्रम में प्रवेश के लिए अर्जी ता. 15 जून, 1988 तक स्वीकार की जाएगी। पारंगत अभ्यासक्रम में प्रवेश के लिए प्रस्तुत अथवा आनुषांगिक विषय की द्वितीय श्रेणी की स्नातक पद्वी आवश्यक है। समाज कार्य के अभ्यासक्रम में छात्रालय जीवन अनिवार्य है, और उसे शिक्षण के अंतर्गत भाग मानकर मूल्यांकन किया जाएगा : ग्राम विस्तारों को प्रधानता देने की दृष्टि से समाज कार्य पारंगत के अभ्यासक्रम की रचना की गई है। इसलिए ग्राम विस्तारों के रचनात्मक कार्यों को महत्व दिया जाएगा। ग्राम विद्यापीठों की पद्वी वाले अथवा बी.ए. में द्वितीय वर्ग वाले छात्र ही प्रवेश के योग्य होंगे। उपरोक्त विषयों के उपरांत अनुपारंगत (एम. फिल) दफ्तर विज्ञान, शांति-संशोधन, विज्ञान-अहिंसा तथा बोद्ध दर्शन के दो वर्ष के साप्ताहिक अभ्यासक्रम के लिए वे लोग प्रवेश-पात्र गिने जाएँगे जिन्होंने पारंगत (एम.ए.) के समकक्ष परीक्षा द्वितीय श्रेणी में पास की होगी। विद्यावाचस्पति (पी.एच.डी.) के दो वर्ष के अभ्यासक्रम के लिए अनुपारंगत की द्वितीय वर्ष की पद्वी आवश्यक है। विद्यावाचस्पति (पी.एच.डी.) हुए लोगों के लिए विद्यावारिधि (डी. लिट.) की पद्वी का नया अभ्यासक्रम इस वर्ष से शुरू होगा। स्वाध्याय पद्धति के अभ्यासक्रमों में भी समूह जीवन का अभ्यास कराने के लिये शिविरों तथा अभ्यास प्रवासों का आयोजन किया जाएगा जो कि सबके लिए अनिवार्य होगा।

4. पत्रव्यवहार द्वारा गांधीविचार पारंगत (एम.ए.) और शिक्षण पारंगत (एम.एड.)

गांधीजी के जीवन और कार्य के संबंध में तथा गांधी विचार के सामाजिक, आर्थिक, राजकीय, धार्मिक, आध्यात्मिक, शैक्षणिक पहलुओं पर पारंगत (एम.ए.) कक्षा का यह अभ्यासक्रम दो वर्ष का होगा। जो लोग किसी विषय पर स्नातक अथवा उसके समकक्ष पद्वी धारण करते होंगे उन्हें प्रवेश मिल सकेगा। जिन्हें पद्वी न लेनी हो उनके लिए एक वर्ष के चार प्रश्नपत्रों का पाठ्यक्रम भी रहेगा। जो लोग स्नातक नहीं हैं किन्तु जिनकी आयु 21 वर्ष के ऊपर की है वे लोग भी डिप्लोमा की परीक्षा दे सकेंगे। (1) किन्तु उन्हें उत्तीर्ण होने का ही प्रमाण-पत्र मिलेगा। (2) शिक्षण पारंगत (एम.ए.) तथा बी.एड. अथवा उसके समकक्ष पद्वीधारी प्राथमिक बुनियादी अध्यापन मंदिरों में काम करने वाले शिक्षक पत्र-व्यवहार के शिक्षण के लिए अर्जी कर सकेंगे। पत्र-व्यवहार उपरांत साप्ताहिक वर्गों का दो वर्षों का और पूरे समय के वर्गों—द्वारा एक वर्ष का शिक्षण पारंगत के अभ्यासक्रम की भी व्यवस्था की गई है।

5. ग्रंथालय विज्ञान विशारद(बी.लीब) ग्रंथालय विज्ञान विशारद (बी लिब.) एक वर्ष का पूरे समय का अभ्यास जुलाई 1988 से शुरू होगा। इस अभ्यासक्रम के लिए वे लोग ही अर्जी कर सकेंगे जो बी.ए. द्वितीय वर्ग की पद्वी धारण करते हैं। इसके उपरांत ग्रंथालय विज्ञान पारंगत के दो वर्ष के अभ्यासक्रम के लिए वे अर्जी कर सकेंगे जो बी.लिब. उत्तीर्ण हैं।

सभी अभ्यासक्रमों के प्रवेश संबंधी : 1. गांधीजी नुं जीवन एमना ज शब्दोमां, 2. समूहजीवन आधार—बबलभाई मेहता, 3. केलवणी वडे क्रांति (संक्षिप्त), 4. भारतीय संस्कृति नुं अमृततत्व पुस्तको अर्जी फोर्म के साथ खरीद लेनी चाहिए। प्रवेश में दो घंटे के 200 अंक के दो प्रश्न पत्र रहेंगे, उसमें विद्यापीठ के ध्येय, गांधी जीवन और विचार, भारतीय संस्कृति के आदर्श अभ्यास के प्रस्तुत विषय की मूलभूत जानकारी और समूह-जीवन की अपेक्षाओं का समावेश होगा। दोनों प्रश्नों में हेतुलक्षी छोटे सवाल पूछे जाएंगे। प्रवेश परीक्षा की तारीख प्रवेश-पात्र उम्मीदवारों को पत्र द्वारा सूचित की जाएगी।

सभी अभ्यासक्रमों के अध्ययन काम में

प्रमाणित खादी का गणवेश पहनना होगा तथा प्रार्थना और समूह कताई में नियमित और समयसर भाग लेना होगा तथा गांधी विचार की परंपरा अनुसार जीवन व्यवस्था के सभी कार्यक्रमों में उपस्थिति अनिवार्य होगी। युनिवर्सिटियों की तुलना में वेकेशन और छुट्टियों के दिन बहुत कम रहेंगे और एक सत्र में 10 दिन से अधिक अनुपस्थित रहने वाले का सत्र मंजूर नहीं होगा। प्रवेश प्राप्त करने वाले को प्रामाणित खादी के विद्यापीठ द्वारा नियत किये गए, गणवेश तीन जोड़ियां तथा छात्रालय में प्रवेश लेने वाले को बिस्तर लाना आवश्यक होगा। प्रवेश पत्र तथा प्रवेश परीक्षा सम्बंधी जानकारी प्राप्त करने के लिए संबंधित आचार्य तथा संयोजक को तीन रु० के डाक टिकिट पत्र के साथ भेजना आवश्यक है।

विनोद त्रिपाठी
कुलसचिव

UNIVERSITY OF CALCUTTA

Senate House, Calcutta-73

Advertisement No. Est/3A/88

Dated : 19.5.1988

Corrigendum and Addendum to Advt. No. Est/3/88 Dated 27.4.88

Regarding applications for the posts of Readers and Lecturers in different Departments.

Group—A

1. Serial No. 7 : Department of Education

The number of vacant posts of Readers and Lecturers be read as Reader—5, Lecturer—2, instead of Lecturer—1 as advertised.

2. Serial No. 19 : **Department of Business Management.**

Reader—(2) Posts—For Reader (1) Post-Specialisation in Econometrics and Advanced Economic theory with teaching experience in Postgraduate classes for at least five years in the following subjects.

(1) Managerial Economics
(2) Marketing Economics and Market forecasting
(3) Quantitative Techniques

For Reader (2) Post—Specialisation in any of the functional areas of management, viz. marketing, personnel and finance.

Lecturer—(1) Post—M.A. in Economics/M.Com./MBM/MBA with good academic records with research aptitude.

3. Serial No. 15 : **Department of Language**

Lecturer 7 : One Lecturer each for German, French, Chinese. Tibetan, Spanish, Japanese, Italian.

4. Serial No. 1 : **Department of Philosophy**

The number of vacant posts of Readers and Lecturers be read as Reader—2, Lecturer—1 instead of Reader 2 only.

5. Serial No. 5 : **Department of Linguistics.**

The humber of vacant posts of Lecturers be read as Lecturer—4 instead of 3.

6. Serial No. 6 : **Department of Tamil**

The number of vacant posts be read as Reader—1 and Lecturer—2 instead of Lecturer—2.

7. Serial No. 9 : **Department of South and South East Asian Studies**

The number of vacant posts be read as Reader—1 and Lecturer—2 instead of Lecturer—1.

8. Serial No. 11 : **Department of Sanskrit**

The number of vacant post be read as Lecturer—3 instead of 4.

9. Serial No. 13 : **Department of Arabic & Persian**

The number of vacant posts be read as Reader—1 and Lecturer—1 instead of Lecturer—2.

10. Serial No. 14 : **Department of Pali**

The number of vacant posts be read as Reader—1 and Lecturer—2 instead of Lecturer—1.

11. Serial No. 15 : **Department of Languages**

The post of Reader—1 to be treated as deleted for the present.

12. Serial No. 22 : **Department of Bengali**

The number of vacant posts be read as Reader—1 and Lecturer—1 instead of Reader—1 post only.

ADDENDUM :

13. Serial No. 23 : **Department of English**

Reader—1 post

14. Serial No. 24 : **Department of French**

Lecturer—1 post

Group—B

1. Serial No. 3 : **Department of Chemical Technology**

Lecturers—2 Posts—Specialisation for Post (1)—Ceramic Engineering and Allied Technological subjects—In addition ability to teach Kinetics of high temperature operations, Heat Transfer and Mechanical operations in Industrial process.

For post (2)—Organic technology and allied Technological subject. In addition ability to teach Petrochemicals, Plant design and Project feasibility.

2. Serial No. 1 : **Department of Chemical Engineering**

The number of the posts of Reader be read as 3 instead of 2. For the additional post of 1 Reader.

Essential Qualification—Uniformly good academic career with Master's and Bachelor's degrees in Chemical Engineering/Mechanical Engineering of this University or equivalent.

Desirable—Teaching and/or research experience on subjects like machine design, Applied Mechanics Process Instrumentation and Control, Chemical Reaction Engineering, Transpost phenomenon and Process Design.

3. Serial No. 11 : **Department of Chemistry**

The Specialisation for the post of Reader (1 post) should be read—any specialisation in Chemistry (i.e. Inorganic/Organic/Physical/Analytical) insteap of 'Organic Chemistry in Natural Products'.

4. Serial No. 4 'B' —**Department of Plastic and Rubber Technology**

Lecturers—(2) Posts—Specialisation—For (1) post—Rubber Technology and for the post (2) Plastic Technology.

5. Serial No. 14. 'B'—**Department of Botany**

Lecturer—(4) Posts—(a) the distribution of the posts is as follows :

2 posts of Lecturers in the Department of Botany

2 posts of Lecturers in the Centre of Advanced Study (Cell and Chromosome Research)

(b) For the 2 posts of Lecturers in Botany—Specialisation—(1) M.Sc. in Botany with Specialisation in Microbiology and (2) M.Sc. in Botany with specialisation in Expt. Pharmacognosy.

(c) For the 2 posts of Lecturers in the

Centre of Advanced Study—(1) M.Sc. in Botany with Chromosome Research in relation to plant tissue culture, (2) M.Sc. in any branch of Life Sciences with specialisation in Chromosome Research in relation to environmental mutagenecies in higher organism.

6. Serial No. 8 **Department of Zoolozy**

Reader (2) posts—Specialisation—Animal Physiology/Malacology/Fishery/Genetics (not more than one from any of these specilisations).

Lecturer (1) post—Specialisation—Endocrinology

7. Serial No. 10 'B'—**Department of Physiology (Sc.)**

Lecturer (3) posts—Specialisation—(a) For 1 post—Sports and Exercise Physiology/Work Physiology and Ergonomics.

For the (2) post—Biophysics and Electro Physiology/Endocrinology.

For the (3) post—Biochemistry/Nutrition/Immunology and Microbiology.

8. Serial No. 2—**Department of Applied Physics.**

(a) Reader (1) post—The specialisation for the one post of Reader be read as M.Tech. in Applied Physics or M.E./M.Tech. in Electrical Engineering with specialisation either in Electrical Machines and Power system or in Measurement and Instrumentation.

(b) Lecturer (1) post—(In addition to general essential qualifications M.Tech. in Applied Physics or M.E/M. Tech. in Electrical Machines and/or power systems.

9. Serial No. 7 —**Department of Statistics**

Lecturer—2 posts Desirable—"Knowledge of design of Experiments and multivariate analysis"

10. Serial No. 6 **Department of Geography.**

Reader—1 post Specialisation for Reader preferably Bedology/Medical Geography.

Lecturer—1 Post Specialisation for Lecturer preferably Meteorology/Regional Planning.

11. Number of Lecturer's posts (Department of Anthropology) under Serial No. 5 to be read as 4 instead of 6 at present.

12. Serial No. 9 (Department of Geology) to be treated as deleted entirely for the present.

Group—C

1. Serial No. 3 **Department of Pharmacology**

For Reader (1) Post—Candidates possessing M.Sc (Organic Chemistry as specialisation) Ph.D. (Chemistry) Degree with Post Graduate teaching and Research experience in Medical Chemistry for more than ten (10) years will be preferred.

For Lecturer (1) Post—Candidate with M.B.B.S./Ph.D. (Medicine) having research experience in indegenous-Degrees and Reproductive Pharmacology will be preferred.

The last date for receipt of application has also been extended and be read as 10th June, 1988 instead of 27th May, 1988.

Those who have already applied in response to Advt.No. Est/3/88 may send additional information, if necessary.

P.K. Chowdhury
DEPUTY REGISTRAR

Jagadguru Sri Shivarathreeshwara Mahavidyapeetha

RAMANUJA ROAD, MYSORE-4.

J.S.S. COLLEGE OF PHARMACY

Sri Shivarathreeshwaranagara, Mysore-570 015

PHONE : 27583

(Affiliated to University of Mysore for B. Pharm Course) And
(Affiliated to the Pharmacy Council of India, for D. Pharm Course)

ADMISSION NOTIFICATION 1988-89

Applications are invited for Admission to Bachelor in Pharmacy (B. Pharm) and Diploma in Pharmacy (D. Pharm) for the academic year 1988-89.

Eligibility

I. **Diploma in Pharmacy** :— Two years course.

(a) Candidates who have passed S S.L.C. or equivalent examinations are eligible for admission to I Year D. Pharm.

(b) Candidates who have passed HSC/PUC/PDC or I B.Sc., with Science Combination are eligible for admission to II D. Pharm.

II. **B. Pharm Degree Courses** :—Four years course.

(a) Candidates who have passed II PUC or equivalent examinations with Physics (P) Chemistry (C) Mathematics (M) and Biology (B) or PCM or PCB securing not less than 50% of marks (both years of PUC or its equivalent) with science subjects are eligible for admission.

(b) Candidates having 50% of the aggregate marks of the Final D. Pharm of the two years D. Pharm course conducted by an authority approved by Pharmacy Council of India are also eligible for admission.

(c) B.Sc., Degree of Mysore University with PCM/PCB or a B.Sc. Degree with the same combination of subject of any other University with a minimum of 50% of the aggregate marks of all the 3 years of examination, in case of SC/ST the minimum marks required shall be 40%.

Application form with Prospectus can be had from the College, on payment of Rs. 25/- by cash, D.D. or crossed Indian Postal Order drawn in favour of Principal, J.S.S. College of Pharmacy, Sri Shivarathreeshwara Nagar, Mysore-15. **Money Orders will not be accepted.**

Hostel facilities are available to both boys and girls.

The session will start from 11th July 1988 for D. Pharm and 8th August 1988 for B. Pharm. Last date for receiving the application form is **10th June, 1988.**

SECRETARY

GULBARGA UNIVERSITY

GULBARGA

ADMINISTRATIVE OFFICE, "JNANA GANGA" GULBARGA

No. GUG.ADM.II.EST (NT). 88-89/324 **Dated : 13-5-1988**

NOTIFICATION

Applications are invited for the following posts in Six Sets so as to reach the Registrar, Gulbarga University, Gulbarga-585 106 on or before 30th June, 1988 along with Indian Postal Order/D.D./Bank Challen for Rs. 18/- drawn in favour of Gulbarga University, Gulbarga. Selected candidates who fulfil UGC qualifications will be given UGC pay scales.

Sl. No.	Name of the Post	No. of Posts	Classification
1.	LIBRARIAN	01	SC-1
2.	DEPUTY LIBRARIAN	02	SC-1 ST-1
3.	ASSISTANT LIBRARIAN/ DOCUMENTATION OFFICER	04	SC-1 ST-1 GM-1 Gr. 'A'-1.
4.	LIBRARY ASSISTANT	05	SC-1 ST-1 GM-1 Gr. 'A'-1 Gr. 'B'-1
5.	DIRECTOR OF PHYSICAL EDUCATION	01	SC-1
6.	COACHES		
	(i) Athletics	02	SC-1
	(ii) Volleyball		ST-1

NOTE : Application Forms along with details containing qualification, Age, Classification of vacancies, pay scales etc., will be supplied along with the application forms.

REGISTRAR

PRIN. L.N. WELINGKAR INSTITUTE OF MANAGEMENT DEVELOPMENT & RESEARCH

195 SION, BOMBAY

We have full time faculty positions of Reader & Lecturer in the areas of General Management, Economics, Personnel Management Production Marketing and related disciplines :

Recruitment : Good academic record with a doctoral degree or equivalent published work and about five years experience of teaching and/or research, or industrial experience of five years with teaching experience as visiting faculty.

Applications in the prescribed form together with copies of certificates should reach the undersigned on or before **30th June, 88.** Pay scales and other service conditions will be as per Bombay University rules. Other things being equal, preference will be given to backward class candidates.

Prescribed forms of application can be had from the office on pryment of Rs. 10/- cash or postal order of Rs. 15/- by post.

Dr. S. D. Kopardekar
DIRECTOR

GOA UNIVERSITY

DEPARTMENT OF MARINE SCIENCES

BAMBOLIM, GOA-403005

Dated : 16th May, 1988

M. Sc. Marine Biotechnology— Recruitment of Teaching/Research Staff

Applications are invited for the following posts in the prescribed form (10 copies) together with copies of certificates and an application fee of Rs. 10.00 (Rs, 5.00 for candidates belonging to SC/ST) so as to reach the Registrar of the Goa University, Bambolim, P.O. Santa Cruz, Goa-403-005, on or before **15th July, 1988.** from Inland candidates and 31st July, 1988 from candidates abroad. The University reserves the right of accepting/rejecting applications received after the last date fixed for receipt of applications.

Prescribed forms of applications can be had in person free of charge from the Registrar's Office on payment of Rs. 10.00 by cross D. D. drawn in favour of the Registrar, Goa University on the State Bank of India, Panaji or Bambolim Branch, Goa, or by Indian Postal Order.

The minimum qualification and the scales of pay will be as prescribed by the University Grants Commission from time to time. The posts also carry allowances as admissible to the Goa State Government employees. A higher starting pay may be considered for the exceptionally qualified persons.

Sr. No.	Name of the Post	No. of posts
1.	Professor of Biotechnology	3
2.	Reader in Biotechnology	1
3.	Research Associates in Biotechnology/in any area of Marine Science	2

The candidates should have teaching and/or research experience in one or more of the following areas :

Genetic Engineering; Cell and Molecular Biology; Plant & Animal; Tissue Culture; Microbial Genetics & Biochemistry.

Dr. S.K. Gandhe
UNIVERSITY REGISTRAR

INDIAN AGRICULTURAL RESEARCH INSTITUTE

NEW DELHI-110 012

Notice for Admission to M.Sc. & Ph.D. Programme (1988-89 Session)

Applications in the prescribed forms are invited for admission to both M. Sc. and Ph.D. Programme in various disciplines of Agricultural Sciences namely, Economics, Engineering, Extension, Physics, Statistics, Agronomy, Biochemistry, Entomology, Genetics, Horticulture, Microbiology. Mycology and Plant Pathology, Nematology, Plant Physiology, Soil Science and Agricultural Chemistry, Molecular Biology and Biotechnology; and to M.Sc. programme only in Computer Application in Agriculture.

Eligibility for M. Sc. Courses : Bachelor's, degree with 55% of marks (50% for SC/ST candidates) in Agriculture or its cognate branches of natural sciences or social sciences or technolgy.

For Ph.D. Courses : Master's degree with 55% marks (50% for SC/ST candidates) in Agriculture in the concerned discipline or its cognate branches of natural sciences or social sciences or technology.

Those appearing for Master's/Bachelor's degree examination may also apply by **30th June, 1988** which is the last date for receipt of applications provided the final result and marks sheets are submitted by 20th July, 1988. The session will start in September 1988.

Only those candidates who come from the system of 10+2+3 or 10+2+4 or 10+1+4 for the first degree course will be eligible to be considered for admission to M. Sc. programme at Indian Agricultural Research Institute. Candidates with 10+2+2 will not be eligible to be considerd for admission. A good knowledge of English is essential.

Candidates called for interview on the basis of IARI Ready Reckoner will also be required to appear in the written test which will be conducted one day before the interview date in August, 1988.

Application form and Information Bulletin containing full information may be obtained on payment of Rs. 12.00 in cash at the Institute or if desired by post by sending a crossed Indian Postal Ooder for Rs. 15.00 (Rs. 20.00 if required by Registered Post) payable at Post Office, "I.A.R.I., New Delhi" and drawn in favour of the Registrar (Academic), Post Graduate School, Indian Agricultural Research Institute, New Delhi-110012. All Postal Orders should bear the signature of the issuing Post Master and clear stamp of the issuing Post Office. The date of the Indian Postal Order should not be prior to the date of issue of the notice in the newspaper. If the Postal Order does not bear the full and legible address of the candidate the Information Bulletin will not be sent. The Institute has no responsibility for non-receipt or late-receipt of application forms for any reason including loss/delay in postal transit.

Last date for issue of application forms :

(i) At IARI Counter : 30.6.1988 or till the forms are available whichever is earlier.

(ii) By Post : 25.6.1988 or till the forms are available whichever is earlier.

While asking for Information Bulletin, clearly mention your postal address in BLOCK LETTERS and also whether it is required for admission to M. Sc. or Ph. D. degree course.

Note : For branches of sciences, etc. accepted as cognate to each discipline, please consult the Information Bulletin. A candidate can be considered for admission to three disciplines at the most for M. Sc. and only two disciplines for Ph. D. programme. A separate application in the prescribed form alongwith copies of the all certificates and complete in all respects must be made for each individual discipline. 22.5% seates are reserved for SC/ST candidates (15% for SC and 7.5% for ST), Application forms will be available at Cash Counter in Room No. 47, Director's Office, Indian Agricultural Research Institute, New Delhi from May 25, 1988 onwards.

Last date for Receipt of Application : 30th June, 1988

The las date for receipt of applications from candidates from North Eastern States and Union Territories, Andaman & Nicobar Islands, Laksha Dweep, Ladakh Division of J & K State, Sikkim, Panji Sub-Division of Chamba, Lahaul & Spiti District of Himachal Pradesh complete in all respects is **20th July, 1988.**

ALL INDIA INSTITUTE OF SPEECH & HEARING

MYSORE-6.

ADMISSION NOTICE

Applications are invited for admission to 3 years B.Sc., and 2 years M.Sc., Speech and Hearing Courses for the academic year 1988-89.

Prescribed application forms, together with the prospectus can be had from the Institute on payment of Rs. 12/- (Rs. 7/- in case of SC/ST) in Cash or by Money Order/Indian Postal Order drawn in the name of the Director, All India Institute of Speech and Hearing, Mysore-570 006.

B.Sc. Speech and Hearing

Qualification for admission

Pre-university examination or equivalent of any recognised University/Board with the following subjects with at least 50% marks in the optional subjects at the qualifying examination in these subjects (45% for SC/ST).

(a) Physics
(b) Chemistry
(c) Biology
(d) Mathematics

OR

From Universities where PCMB combination is not available the following combinations are accepted:

(a) Physics		(a) Physics
(b) Chemistry	OR	(b) Chemistry
(c) Mathematics		(c) Biology

Total seats available—23. 4 reserved for SC/ST. 3 seats are reserved for foreign nationals. The other seats are allocated on merit and on a zonal basis.

M.Sc. Speech & Hearing

Qualification for admission

B.Sc., (Speech & Hearing) or Equivalent Number of Seats : Thirteen. 2 reserved for SC/ST, and three seats are reserved for in-service personnel with 3 years experience.

Stipend

All the selected candidates (except foreign nationals) will get a stipend @ Rs. 150/- per month for B.Sc., and Rs. 250/- per month for M.Sc., for nine months in an academic year.

The medium of instruction will be English.

Last date for receipt of completed application at the Institute :

(a) B.Sc.	**10th June 1988**
(b) M.Sc.	**2nd July, 1988**

Hostel accommodation for both Gents and Ladies available.

DIRECTOR

Printed & Published by SUTINDER SINGH, on behalf of the Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi-110002. Grams : ASINDU. Phones : 3315105, 3313390, 3312305, 3310059 and 3312429 Telex 31 5578 AIU IN

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University News

MONDAY, JUNE 6, 1988 **Rs. 1.50**

8th Annual Convocation of the University of Poona. (From L to R) : Prof. S.N. Navalgundkar, Pro-Vice-Chancellor, Prof. V.G. Bhide, Vice-Chancellor, Dr. M.R. Srinivasan, Chairman, Atomic Energy Commission, who delivered the convocation address and Shri Shantanurao Kirloskar, Industrialist.

ANNAMALAI UNIVERSITY

ANNAMALAINAGAR

NOTIFICATION

Applications are invited for admission to the following courses for the academic year 1988 89.

		Cost of application form & Prospectus
1.	M.A. Degree **Branches :** 1. Philosophy, 2. Psychology. 3. History, 4. Political Science, 5. Economics, 6. English, 7. Tamil, 8. Sanskrit. 9. Linguistics, 10. Sociology, 11. Population Studies. 12. Develoment Studies, 13. Applied Economics, and 14. Translation.	Rs. 25/-
2.	M Sc. Degree **Branches :** 1. Mathematics, 2. Statistics, 3. Physics, 4. Chemistry, 5. Bio-Cbemistry. 6. Botany, 7. Zoology, 8. Geology, 9 Marine Biology & Oceanography; and 10. Coastal Acquaculture.	Rs 25/-
3.	M.Com. Degree (Both English & Tamil medium)	Rs. 25/-
4.	M.O.L. (Tamil) Degree	Rs. 25/-
5.	B.Ed. Degree	Rs. 25/-
6.	M.Ed. Degree	Rs. 25/-
7.	M.Phil, Degree	Rs. 25/-
8.	Post-Graduate Diploma Courses 1. Tourism, 2. Archieves Keeping, 3. Translation Administrative Drafting and Reporting in Hindi, 4. Econometrics, 5. Gandhian Thought, 6. Ramalinga Philosophy, 7. Guidance and Counselling, 8. Corporate Secretaryship, 9. Applied Linguistics, 10. Insurance, 11. Public Administration, 12. Banking Law and Practice, 13. Population Education, 14. Statistics.	Rs. 25/-
9.	Post M.Sc. Diploma Courses 1. Spectroscopy, 2. Magnetic Science, 3. Hydro Geology.	Rs. 25/-
10.	Bachelor of Library and Information Science	Rs. 25/-
11.	Certifieate Course in Library Science	Rs. 10/-
12.	Title of Isaimamani	Rs. 10/-
13.	Title of Natanamamani	Rs. 10/-
14.	B.Music	Rs. 10/-
15.	Diploma Courses 1. Tamil, 2. Advanced Diploma for Proficiency in French, 3. French, 4. Linguistics, 5. Languages (Tamil, Telugu, Kannada, Malayalam, Sanskrit, Hindi)	Rs. 10/-
16.	Certificate Courses 1. French, 2. Journalism, 3. Folklore, 4. Reprography and non-book materials, 5. Language (Tamil, Telugu, Kannada, Malayalam, Sanskrit, Hindi).	Rs. 10/-

For application form and prospectus, the REGISTRAR, ANNAMALAI UNIVERSITY, ANNAMALAINAGAR-608 002 may be addressed by enclosing (i) a demand draft to the value indicated against each course, drawn in favour of the REGISTRAR, ANNAMALAI UNIVERSITY, payable on Indian Bank or Bank of Madura at ANNAMALAINAGAR, or State Bank of India at CHIDAMBARAM; and (ii) a self-addressed envelope of size 30 cm x 13 cm stamped to the value of Rs 1.80 with the name of the course for which the application form is required superscribed boldly on the envelope. The name of the course should be clearly indicated in the requisition letter. The application form together with the prospectus will be issued from 25th May 1988.

The last date for receipt of filled in application by the University is **30-6-88**.

The University will not be responsible for any postal delay.

R. Rajamanickam
REGISTRAR

UNIVERSITY NEWS

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Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association.

UNIVERSITY OF POONA

V.G. Bhide*

University of Poona hosts the Group Discussion-cum-Orientation Programme on Financial Administration in Universities being organised by the Association of Indian Universities from 6-10 June, 1988.

The part of the country wherein University of Poona is located, and over which it has jurisdiction is unique in number of respects. This region has had a glorious past in various fields such as spiritual, philosophical, social, cultural, educational etc. It produced such a galaxy of Saints such as Dnyaneshwar, Ramdas, Tukaram, Namdeo, and several others; social reformers like Jyotiba Phule, Vitthal Ramji Shinde, Mahadeo Govind Ranade, Maharshi Karve and others; political thinkers such as Tilak, Gokhale, Ranade, Ambedkar, Savarkar etc. Indeed this region provided a leadership to the country in various fields such as education, politics, etc. and has been a craddle for a number of social reforms and political struggle.

Naturally this region clamoured for a separate University long before the country got its independence. The British Government deliberately overlooked these demands. However, as a result of persistent and strong public upsurge, the Governor of Bombay appointed a committee on 7th February 1942, under the Chairmanship of Rt. Hon'ble M.R. Jayakar, to report on the question of the establishment of a University for Maharashtra. The committee submitted its report on 6th August 1943. No action could be taken on the report of this committee until after the end of Second World War had ended and a popular Congress Ministry came into power again towards the end of 1946. Shri B.G. Kher, Prime Minister and Education Minister, Government of Bombay, took keen interest in the matter and processed the bill for the establishment of this university in the State Legislature.

The First University Act was passed by the Bombay Legislature on 18th February, 1948 and on 15th April of that year, Dr. M.R. Jayakar assumed his office as the First Vice-Chancellor of the University. In the initial stages, he was assisted by an Advisory Committee appointed by the Government. The main task before the committee was to frame provisional statutes and to conduct elections to the various bodies and authorities of the University. After the completion of this process, the University of Poona was formally declared as a corporate body on the 10th February, 1949 by a Government Notification. We moved to this beautiful campus extending over 411 acres in early 1950.

Aims and Functions of the University

The Jayakar Committee outlined the aims and functions of the University as follows :

(1) To lay the foundation of a strong teaching University by creating a central organization in Pune, for conducting directly all teaching in

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graduate and post-graduate courses and for organizing and carrying on research in the Faculties of Arts, Science, Technology, Law, Medicine, and such other faculties as occasion may require.

(2) To lay down by holding, if necessary, a matriculation examination, adequate standards for the admission of students to university courses; to link together and bring into contact with itself, institutions of higher learning in Maharashtra and to co-ordinate research facilities and activities throughout Maharashtra by associating with itself scholars and institutions and by promoting research projects through such scholars and institutions.

(3) While not losing sight of its essential character as a university i.e. a seat of universal learning which recognises no frontiers or barriers except those of the human mind itself, to keep in view the special needs, interests and traditions of Maharashtra and its people and in particular its economic resources, its special problems of agriculture, industry and commerce, and generally the various aspects of its economic and industrial life.

(4) To diffuse widely the benefits of university education among all classes by organising centres of extra-mural teaching and university extension activity and encouraging the production of popular literature on scientific and cultural subjects.

(5) To institute and award diplomas of merit and proficiency in various branches of theoretical and practical study of a standard lower than the degree standard of the university.

One must admire the foresight of the founding fathers of this University that they envisaged some 40 pears ago what appears necessary now. The University has over the years kept these objectives in view and planned its programmes of development. May I say that we in the University, have debated on several occasions as the main functions of the university and we could do no better than to spell out these functions in the following language :

(a) To carry out research to expand the horizons of knowledge both concerning the inner world and of the external world and attempt to synthesize the knowledge of the inner and the outer worlds.

(b) To disseminate the known and the acquired knowledge through educational and training programmes and to inculcate among the students the desired attitudes, outlooks and values.

(c) To apply through extension services the known and the acquired knowledge to solve the perceived problems of the society—social, economic, industrial, etc. and to provide a leadership to the society in various fields.

To nurture and nourish this University, it was our good fortune that Providence provided to us a succession of Vice-Chancellors who had distinguished themselves in several fields and they lent their distinction to the University by their association with it. The University was fortunate to have such illustrious men as Dr. M.R. Jayakar (1948-1956), Dr. R.P. Paranjpye (1956-1959), Professor D.G. Karve (1959-1961), Mahamahopadhyaya D.V. Potdar (1961-1964), Dr. Kakasaheb Gadgil (1964-1966), Dr. D.R. Gadgil (1966-1967), Dr. H.V. Pataskar (1967-1970), Dr. G.S. Mahajani (1972-1975) etc. Under the guidance of these eminent men, the University made rapid progress and has to put it in the language of Dr. G S. Mahajani "the University has today the glow of intellectual health about it and so to say it presents academically a photogenic picture. It must also be mentioned that the local ethos of Pune and its surroundings characterised by regard for scholarship and learning has contributed in no small measure to this spectacular progress of this University. Today, it is considered as one of the leading and progressive universities in the country—a seat of learning of which we are justifiably proud."

University Teaching Departments

This University is both a teaching university and an affiliating university. Dr. Jayakar emphasized the importance of university teaching departments and started establishing these on the campus of the University. With his foresight and dynamism, the University departments developed very early. The number of these University departments has been growing steadily over the years. At present, we have 32 teaching departments spread over Faculties of Arts; Science; Engineering; Law; Mental, Moral and Social Sciences; Commerce; Management, etc. With the growth of University departments, the number of faculties has also been steadily increasing. Only this year, we added a new faculty called the Faculty of Management.

These university departments are at various stages of development. There are four Centres of Advanced

20 JUN 1988
C.F.T.R.I. MYS

Studies in the University. These are: Centre of Advanced Studies in Sanskrit; Centre of Advanced Studies in Economics; Centre of Advanced Studies in Linguistics and Centre for Advanced Studies in Solid State Physics and Material Science. This last was granted by the UGC this year.

The University Grants Commission on the recommendation of the Science Advisory Committee to the Union Cabinet launched a programme called the COSIST (Committee on strengthening of infrastructure in Science and Technology) to identify a very few select departments in the Science and Engineering faculties for strengthening them by equipping them so as to make them comparable to the corresponding departments in advanced countries. The selection of these departments is rigorous and is based on quality of teaching and research programme, achievement of the staff, etc. Four of our Science Departments namely Physics, Chemistry, Statistics and Zoology have received substantial assistance from the UGC under this programme. The selection of the departments under this programme is not only an honour but is also a recognition of the quality of the work and the standing of these departments in the country.

Next in order of importance and distinction is the programme of the University Grants Commission called the Departments of Special Assistance. Five departments of this University namely Physics, Chemistry, Mathematics, Statistics and Zoology have been recognized as Departments of Special Assistance. The case of the Department of Geology is being processed.

On the Arts and Social Sciences sides, there is a programme called the University Leadership Programme. Our departments of Politics and Public Administration, Sociology, Sanskrit, Philosophy have received recognition under this scheme.

Through the assistance of the University Grants Commission, the University established recently two new departments namely (1) Department of Elecronic Sciences, and (2) Department of Computer Science. The Department of Electronics, Government of India suggested to the UGC to select four Universities for establishing Department of Electronic Science and this University has the honour of being one of these four. This department of Electronic Sciences is expected to emphasize more on Science of Electronics rather than electronics engineering and will be funded liberally by the Department of Electronics, Government of India, and the UGC. Similarly, the Department of Computer Science of this University is unique and is perhaps the strongest computer science department in the country. It provides facilities for training leading to M.Sc. in Computer Science, M.Tech. in Computer, Master in Computer Applications and Ph.D. in Computers.

The University has during this year started two new departments on its own and these are (1) Department of Economics, and (2) Department of Commerce. We are fortunate to receive the guidance of Prof. V. M. Dandekar for our department of Economics.

All the departments continually try to update teaching programmes and turn out quality research work. Many of the Professors of the University have been awarded national lectureship of the UGC and chaired national and international conferences. About 1000 research papers are published every year. The University awards roughly 250-300 Ph.D. degrees in various subjects

Linkages with National Institutions

One of the most pace setting experiments which the University launched is the one concerning organization of post-graduate teaching programmes in collaboration with National Institutes. This has helped in improving considerably the quality of post-graduate teaching in the University.

TIFR/Physics Department Programme

The most important of these experiments is the one concerning the organization of M.Sc. Physics teaching jointly by the TIFR and the Physics Department. Tata Institute of Fundamental Research, Bombay is the national centre for Physics and Mathematics. In the joint programme, the syllabus of the M.Sc. Course is jointly evolved and taught by the faculty from TIFR as well as from the Physics Department. Two senior members of the faculty from TIFR spend one semester on our campus to participate in the teaching programme. We were fortunate to have Prof. B. M. Udgaonkar, Prof. Jayant Narlikar and others participating in this programme. The admission to this programme is carried out through a nation wide competitive examination. The TIFR provides scholarship of Rs. 400/- to twenty students. The UGC has agreed to provide scholarship to another twenty students.

Joint teaching programme also aims at modernization of M.Sc. laboratories and undertaking joint collaborative research programmes Similarly, some select students carry out their project work in the TIFR. This joint teaching programme has been a great success and has produced a sea change in the quality of education. The programme is highly popular in the country and this year nearly 1500 students from all over the country competed for twenty seats.

National Chemical Laboratory and Department of Chemistry Interaction

Encouraged by the success of the TIFR-Physics Department Interaction, National Chemical Laboratory, Pune offered to participate in postgraduate teaching in Chemistry. Scientists from NCL give course of lectures along with professors from the Department of Chemistry. In this programme also, NCL gives scholarship to twenty students selected through a competitive examination. This interaction is not only restricted to the teaching but extends over collaboration in research.

Last year NCL and the Department of Chemistry installed a unique joint facility for neutron activation analysis on our campus. This is a unique facility in the country and is used to carry out nuclear chemistry research and for detection of impurities to the level of few parts per million or better.

National Geophysical Research Institute and Department of Geology Interaction

Following the footsteps of National Chemical Laboratory, National Geophysical Research Institute, Hyderabad offered to participate in the teaching of M.Sc. Geology in cooperation with our faculty. NGRI has also established some unique seismic facilities here.

India Meteorological Department and Radio and Space Physics Group Interaction

A similar joint collaboration has now been evolved between the India Meteorological Department, Indian Institute of Tropical Meteorology and our Radio and Space Physics Group. These two institutions located at Pune also participate in the teaching of few courses in the Geography Department.

This cooperation and interaction with national laboratories and institutes are the first of their kind in the country and has been deeply appreciated by the UGC, Science Advisory Council to the Prime Minister and the Academy of Sciences. More than that, our students have benefitted tremendously through these interactions.

Honorary and Emeritus Professors

In addition to the above mentioned interaction with national institutes, we have sought to strengthen our postgraduate teaching and research by introducing a system of Honorary and Emeritus Professors. We are indeed fortunate that we have such a large number of eminent men in various disciplines living in Pune. The University is convinced that if some of these eminent people come and talk with our students, it will not only help to excite the curiosity of the students, but will enable them to do better. With this end in view, we requested some of the eminent people to accept our invitation to become Honorary Professors.

Introduction and Strengthening of Inter-Disciplinary Culture

The University realized the importance and the need to introduce and strengthen interdisciplinary culture. I do not need to stress the importance of interdisciplinary effort. The borderline areas between two disciplines are always exciting and fertile. Just as it is easier to penetrate the grainboundary area between the two grains of a crystal than to penetrate the grain itself, the Q of the system is very high when one is probing on interdisciplinary area rather than probing a monodiscipline area. Indeed today, Science and Technology has no more remained monodiscipline oriented but flourish as a result of interdisciplinary effort and interaction. Realizing all this, the University has sought to strengthen interdisciplinary effort in two different ways.

In one aspect of our effort, we have grouped the departments to form schools. Thus a School of Life Sciences comprises of (1) Department of Zoology, (2) Department of Botany, (3) Department of Microbiology, and (4) Department of Biochemistry. Similar schools have been established in other areas. Thus, we have the following schools—(a) School of Life Sciences, (b) School of Earth Sciences, (c) School of Mathematical Sciences, (d) School of Physical Sciences, (e) School of Chemical Sciences, (f) School of Languages, (g) School of Social Sciences. This grouping could be possible because the University faculty realized that there is so much in common in terms of concepts' techniques and infrastructure.

Interdisciplinary Schools in Nationally Relevant Areas

In addition to the above schools formed out of grouping of various departments, the University has identified some areas of national importance such as Energy, Communication, Environment, Materials, Behavioural Sciences, Social Sciences, etc.

Each of these schools has organized their teaching programmes and have undertaking research projects. The research team, for pursuing research project, is drawn from various departments depending upon the nature of the problem. Many of the schools have done pioneering work and have made unique contributions which have been recognized all over the country.

The school of Communication deals with development of communication packages for a variety of purposes such as (a) for distance education, (b) for adult education, (c) for countrywide classroom programme of the UGC, (d) for upgrading trades etc. This school has one of the most equipped TV studios in the country. It has also the facility for outdoor shooting. The school has conducted various training programmes and has contributed the most to the countywide classroom programme of the UGC. The school has also a very prestigious programme on Development Communication Research Project. Under this programme which is funded jointly by the Government of India and United States Department of Agriculture, the School collaborates with four leading Universities in US, namely, Universities of Cornell, Stanford, Nebraska, Michigan. All these four Universities along with the School of Communication develop communication packages aimed at motivating people for rural development, population studies, public health etc.

The school is in a position to undertake work on commercial basis on behalf of industries, commercial establishments, etc. Indeed they have worked for ONGC, Nirlon and several others. Recently, the school has started screening of video films aimed at popularization of science, educational programmes for the general public. The school has received financial assistance from US Department of Commerce, UGC, British Council, DST, etc.

The School of Energy Studies concentrates on development of techniques and technologies for the utilization of non-conventional sources of energy such as solar, wind, biogas, biomas etc. The school introduced a concept of Autonomous Decentralised Integrated Energy System for Rural villages. There are a large number of villages in this country which are unelectrified. It is equally difficult to reach them with fossil fuels. Consequently, these villages have to rely on the energy sources locally available. This has led to serious deforestation threatening the ecosystem and inefficient burning of cattle waste depleting the farm of organic manure. The school of energy studies carried out a survey of nearly 100 villages in relation to energy resources and energy consumption pattern as of today and likely extrapolation five year hence. Surprisingly, the energy resources in the village are more than sufficient to meet not only the energy requirements of the village today but also of its likely requirement five year hence. The school then proceeded to develop techniques to convert the available energy resources in the village to the form in which it is needed. Then they optimized the energy system using energy mix. A pilot experiment was undertaken in a village SHIRKOLI about 30 kms away. This village has a population of 407. This village has now a gasifier with a generator coupled to it to produce 15 KW of elecrical energy, three community biogas plants, solar cookers etc. The villagers not only satisfy their energy needs for cooking, lighting, pumping but also have facilities for community Radio and Television, communication to a neighbouring town etc. There is a small workshop fitted with lathe, drilling machine etc. The school's efforts have been highly appreciated and the Government of Maharashtra decided to set up such Urja Grams at least one per district. These are in the process of development.

The school developed a variety of things such as solar cookers, solar driers, solar hot water systems etc. These have been passed on to the industry. The school set up 100 ton solar drying plant for M/s Weikfield for drying of edible strach. The school has developed the complete knowhow to convert grapes into raisins. The school is in the process of setting up two plants one at Nasik and the other at Sangli.

The school works closely with industry and has received financial assistance from a variety of sources including private and public sector industries, Government departments, etc. The school has also a few international collaborative programmes. The school acts as needal agency on the Indian side for the project on Amorphous Silicon Solar Cells undertaken under the Science Technology Initiative agreement signed between Prime Minister of India and the President of the United States.

The School of Environmental Sciences has its own teaching programmes and actively participates in Western Ghats development programme of the Department of Environment. Recently, Department of Environment expressed a desire to enter into a long term agreement with the University for undertaking Environmental Impact Assessment of various development projects.

Other schools are also equally active in their respective fields.

Establishment of National Facilities on the Campus of the University

Giant Meterwave Length Radio Telescope

The University has always expressed its deep corcern regarding the fact that various national facilities and national laboratories were established in the past outside the university system. This led to siphoning of men and resources from the universities to national laboratories. To add to this, the national laboratories being relatively new and few got funded liberally at the cost of funding the universities. The universities in the process, got impoverished. Indeed, today, the universities work on shoestring budget. Over the years, the university system has been allowed to run down so much that if nothing is done to bring back the center of gravity of academic activity to the university, the situation may as well become irretrievable.

We have been continually arguing at the national level that henceforth any national facility that may be set up should necessarily be on the campus of the University though not under the administrative control of the university. Our pleas received sympathetic consideration and it has been decided to set up some of the national facilities on the campus of our university and a few others are under consideration.

The Department of Atomic Energy, Government of India, through Tata Institute of Fundamental Research have decided to establish Giant Meter Wavelength Radio Telescope near Pune, with its academic headquarters on the campus of the university. This will be the largest radio telescope in the world. The telescope will be fabricated locally in India and University of Poona will participate in the fabrication. The academic headquarters, technical back up facilities will be located on the campus of the university. This project is going to cost Rs. 20 crores and is bound to give a tremendous boost to research in Astrophysics, Astronomy, Cosmology etc.

In order to take maximum advantage of this national facility, we have proposed to the UGC to set up a center for Astrophysics and Astronomy in the University under the joint auspices of the TIFR and University of Poona. During the recent discussions in the University Grants Commission, the Chairman accepted this proposal in principle and even suggested that the proposed center shoud be an interuniversity center. The proposed center will utilise the unique facilities at GMRT for training and carrying out research. The GMRT and the proposed center will be complimentary to each other. This is the first time in the country where such an arrangement has been evolved and worked upon.

National Biotechnology Programme

Life sciences are experiencing an excitement comparable to what Physics experienced in the early years of this century. There is an effort to synthesize various aspects of life sciences such as Molecular Biology, Molecular Biophysics, Genetic Engineering etc. and explain all of them on the basis of the behaviour of molecules. This attempt has proved to be highly successful and has brought about remarkable developments which have provided us with deeper insight into the life processes. More importantly the knowledge acquired through these studies has been put to applications in industry, medicine, agriculture etc. Realising the importance of this area, the National Biotechnology Board decided to set up national biotechnology training programme in some select universities. Our university was selected for this training programme. This programme started two years back and the first bacth is likely to come out in May-June 1988.

National Bioinformatics Center

The Department of Biotechnology, Government of India have approved of the setting of a National

Bioinformatics Center in our university. This center will be a repository of all the papers and publications in the area of biotechnology. This will be a unique facility.

National Animal Cell and Tissue Culture Facility

The University of Poona succeeded in pursuading the Department of Biotechnology, GOI and the Indian Council of Medical Research to set up national animal and tissue culture facility on the campus of this university. The objectives of the facility are :

To receive, identify, maintain, store, grow and supply, (a) animal and human cell lines, both extsting and newly developed, (b) tissues, organs and fertilised eggs and embryos, (c) Hybrid cells—including hybridomas, (d) unicellular obligate pathogens, parasites and vectors, and, (e) plasmids, genes and genomic library.

The National Animal Cell/Tissue Culture facility will be established on the campus of the university and will be administered by Indian Council of Medical Research. The funding for this facility would be received from the Department of Biotechnology. As in all other national facilities, we are stipulating that the facilities should be available to the students and teachers of the university and further senior persons in these facilities should teach in our departments.

Training cum Research and Development Center in Bipolar Integrated Circuits Technology

The University of Poona and the Electronics and Trade and Technology Corporation of the Government of India, have proposed to the Department of Electronics, Government of India the setting up of training cum research and development centre in Bipolar Integrated Circuits Technology. Electronics, Trade Technology Corporation is a public sector organisation and has undertaken in the past and proposes to undertake in future setting up of plants and carrying out turnkey projects in other countries. Only recently, they completed a project, aimed at setting up integrated circuits plant in South Korea. In undertaking projects of this type, they have to provide training facilities. The proposal to DOE is essentially meant to meet this demand. The proposed training cum research and development center will be located on the campus of the university. Our department of electronics sciences will work in close collaboration with this center utilising the facilities from this center.

Besides taking advantage of national facilities, University of Poona continually strives to establish close contacts with various national agencies. The Department of Geology has very fruitful collaboration with Oil and Natural Gas Commission. Indeed the Department has agreed to conduct training courses for the ONGC personnel. Similarly, the department of Geology trained personnel from the ground water department of Government of Maharashtra in interpreting remote sensing data and in prospecting for ground water. The department also provides consultancy services in this respect to the individual farmers and organisations.

Department of Journalism works in close collaboration with local journalists in the city. Department of History has forged collaboration with the famous Itihas Sanshodhak Mandal. Department of Sanskrit participated in the preparation of Sanskrit Dictionary and collaborates with Bhandarkar Oriental Research Institute.

In much the same way every university department has very close links with the national organisations in their respective areas.

Introduction of flexibility in the system

University strongly believes that flexibility is essential for teachers and others to innovate and experiment. Appraising this, the University continuously attempts to provide for flexibility and autonomy. Indeed, the University has now become famous on this count and our system is referred to as Pune pattern.

University departments have been given academic and financial autonomy. Indeed, heads of departments operate their departmental budgets, invite quotations, place orders etc Some select departments such as Physics, Chemistry, Statistics, Zoology have been given academic freedom in the sense that they can evolve their courses, teaching pattern, evaluate their students etc. This academic and financial flexibility has gone a long way in innovating new teaching methods and programmes and has helped in accelerating the pace of development.

Interaction with Industry :
Science and Technology Park

One of the most significant achievements of this university, for which it is not only known in the country but also elsewhere in the world, is relating to its sustained and fruitful efforts to forge interaction with industry.

The University not only took the survey of the industrial infrastructure and employment potential in the industries in and around Pune, it also identified major constraints to growth of the industries. While identifying the constraints, the university became aware of the tremendous potential for growth. The constraints to growth are:

(1) The small scale sector does not have adequate test, certification and quality assurance facilities. In the absence of test and certification facilities, the products they turn out have no market and more often the products are substandard.

(2) Unlike small scale sector, elsewhere in the country the small scale sector in an around Pune is more technologically oriented. Some four-five engineers get together and start an enterprise. They are bright people. They wish to diversify and have some bright ideas about it. However, because of the lack of developmental infrastructure, they fail to translate their ideas into industrial products.

(3) There are very bright boys in the University. They carry out some very novel and innovative work, However, they are not aware of the application of this work for industrial production. Consequently all this good work merely ends in a publication of a paper or submission of a thesis but does not lead to economic growth.

(4) There are a large number of Indians particularly from this region who are doing extremely well abroad. They wish to duplicate their operations here in Pune with the help of their relatives or friends. In this case, the technology can flow freely but even to adopt this technology to local skills, local materials, one needs a certain amount of developmental effort. In the absence of this infrastructure, this avenue of growth is also not availed of.

In order to overcome these constraints, a series of meetings were arranged and it was decided to establish Science and Technology Park on the pattern of similar parks in the USA and UK on the campus of this University. The objectives of the park are :

(1) to establish a facilitation center which will include test and certification facitities, developmental infrastructure etc.,

(2) to broaden and raise the level of small scale sector by introduction of somewhat modern techniques,

(3) to make avaitable to the industries the results of novel and innovative work being carried out in the university,

(4) to undertake short term, well defined training programmes for persons sponsored by the industry,

(5) to develop and promote entrepreneurship among young boys and girls so that instead of becoming job seekers they became job creaters,

(6) to provide consultancy and to make available to the industry the following infrastructure facilities such as, (1) computers, (2) language translation facilities, (3) audio and video recording facilities.

During the short time this park has been in existence. It has performed remarkably well. Of course, the actual work of innovation, application etc is carried out by the students and the faculty.

One of the most outstanding achievements of this activity is the use of high energy electron beam to tailor the characteristics of high power silicon devices, particularly the turn off times leakages current etc. BHEL, Bangalore and the Physics Department together evolved this technique. Today, every power device manufactured by BHEL, Bangalore, is processed in our department. The department was awarded a special award by Electronics Devices Manufacturing Association for best research. The department of electronics has recently sanctioned Rs. 40 lakhs to the department for making the machine. Similarly, a large number of processing industries are ready to use this state of the art techniques. This unique facility is the only one of its kind in the country. Department of Space has signed an agreement with the university for the use of this facility to test the space quality solar cells.

The other remarkable development is the novel work related to surface modification using ion-implantation, laser beam etc. The University has developed a unique method for modifying the surface layers without altering the bulk so that various surface sensitive properties such as oxidation, corrosion, catalysis, chemisorption etc. can be controlled. We have also evolved very novel techniques for surface hardening, preparation of superhard layers of TiC, TiN etc. These techniques have tremendous applications in number of industries. Ours is one of three groups in the entire world and that there is such a demand from all over the world even from Bell Telephones, Xerox Corporation, for collaborative work.

Similarly our work on microprocessor based instrumentation, pollution control, on biotechnology, tissue culture has attracted considerable attention.

National Science Foundation of USA, Phillips, Holland and several other agencies have evinced keen interest in this endeavour and have offered us help and assistance. Equally gratifying is the response of industries from Pune. Another significant achievement has been launching of small and young entrepreneurs.

University and Affiliated Colleges

This University is partly a teaching and partly an affiliating university. At the time of the establishment of this university, the jurisdiction of the University extended over 12 districts. However, with the establishment of Shivaji University at Kolhapur in 1964, the jurisdiction of this University was reduced to five districts namely Jalgaon, Dhule, Nasik, Ahmednagar snd Pune. In spite of this reduction in the area, the University has been making impressive quantitative as well as qualitative growth.

In the year 1950, the University had 18 colleges, affiliated to it with 8600 undergraduate students. Today, inspite of the reduction in the jurisdiction, the University has 189 colleges, spread over various faculties affiliated to it. The following table gives the growth and distribution of the affiliated colleges over the period of last six years.

TABLE I : Number of Colleges (Facultywise)

Faculty	80-81	81-82	82-83	83-84	84-85	85-86	86-87
Arts; Mental, Moral and Social Sciences; Science; Commerce							
1. Arts, Science, Commerce	32	34	34	35	42	42	44
2. Arts and Science	5	5	6	6	6	6	7
3. Arts and Commerce	40	40	44	52	53	54	57
4. Science	1	1	1	—	2	2	3
5. Commerce	7	7	6	10	14	14	15
Law	9	9	9	9	9	9	9
Engineering (including Architecture and Printing Technology)	2	2	2	16	19	20	22
Medicine (including Pharmacy)	2	2	3	3	5	5	6
Ayurveda (including Homoeopathy and Unani)	6	7	5	6	7	8	8
Education (including Physical Education)	11	11	12	12	12	12	17
Fine Arts	—	—	—	1	1	1	1
	115	118	122	150	170	173	189

TABLE II : Strength in Terms of Student Enrolment

No. of Students	80-81	81-82	82-83	83-84	84-85	85-86	86-87
Below 300	49	46	26	61	69	69	72
Between 300-500	23	22	16	35	28	30	40
Between 500-1000	13	18	36	26	34	35	38
Above 1000	30	32	44	28	39	39	39
	115	118	122	150	170	173	189

There has been a corresponding increase in the number of students enrolled and appearing at the examination. The number of students taking examinations of the University increased from 70,000 in 1979 to roughly 1,50,000 in the year 1987.

The Colleges affiliated to the University have varying sizes, standards and standing. The distribution of colleges according to the student enrolment is given in the Table II (on page 9).

Correspondingly, the number of teachers in affiliated colleges has increased from 3000 in 1970 to over 5000 in 1985-86.

Some of the colleges are highly developed and are about 100 years old, whereas some of them are one year old. The same disparity exists in relation to standards and attainment. It may be mentioned that nearly 40% colleges are non-viable colleges. Many of the colleges do not have adequate and adequately qualified staff. Similarly, these colleges have very poor infrastructure in relation to library, laboratory, hostels, play fields, etc. The geographical distribution of these colleges is more or less even and seem to cater to a variety of needs such as, (a) discipline and subjects, (b) backward classes, (c) women, (d) minority community, etc.

It must be said, at this point, that in this part of the country there is a long tradition of private enterprise in education. Indeed, all the colleges are private colleges. Some of the colleges have done outstanding work and produced a galaxy of people who have become leaders in various fields of human activity such as in Politics, Science, Commerce, Industry, Sports, Dance, Drama, Music etc. Before independence, these colleges attracted very eminent men as teachers at tremendous self-sacrifice and it is through their example they produced generations of students fired with patriotic fervour, moral texture and motivated and highly dedicated citizens. Indeed, if and when the history of freedom struggle comes to be written in all its splendour, one would realize the yeoman service these colleges rendered.

It may be noticed from Table I that, until 1983, there has been expansion only in Arts, Science and Commerce with practically no growth in professional faculties such as Engineering, Medicine etc. However, suddenly in 1983, the Government of Maharashtra, allowed sixteen engineering colleges to be opened within the jurisdiction of the University of Poona. Although the growth in engineering educational facilities was very necessary, the sudden opening of new colleges has given rise to a large number of problems.

It must, however, be mentioned that some of the recently opened colleges are highly enterprising and have done excellent work in relation to adult education, continuing education, rural development etc. These colleges have not only received acclaim locally but also at the national level.

The University undertakes periodic critical analysis of the situation in relation to the affiliated colleges and takes corrective steps. Some of these are stated below :

(1) The student enrolment has exponentially increased over the last decade and half. The doubling period of enrolment and the associated activities is roughly seven years. If this rate of growth continues, which the present conditions indicate that it may, then the enrolment by the end of the decade will be about 2,50,000 and by the end of the century, the enrolment may go upto 400,000. This exponential growth in the number of students without proportionate increase in resources—human and material, must be viewed with concern. It is almost certain that by the expansion of the conventional system i.e. formal education, opening of new colleges etc., it will not be possible to provide the students with quality education. It is our conviction and firm belief that it will become increasingly necessary to introduce and expand the system of non-formal education using modern electronic media such as the radio, television etc.

In order to partially solve this problem, the University has thought of introducing what we call Media Mediated Education. This involves getting audio and video lecture tapes prepared by eminent teachers in the University and Colleges. A set of lecture tapes would cover the entire syllabus of a given course. These lecture tapes would be duplicated and provided to the colleges. It is proposed to establish a library of tapes in every college. Through these tapes, it would be possible to provide quality education to students in distant and remote areas. In a sense; it will make available to every student the facility of listening to a best teacher in the University. The scheme does not totally dispense with a teacher but what is proposed in the scheme is to nominate one of the competent teachers to be a consultant to whom students could go to, to seek clarification or to solve their difficulties after seeing the video tape on the television screen. This will not only enrich the formal education but will also provide facilities to learn while serving or carrying out a profession or an avocation. By implication, the system also provides for teacher training because the young and inexperienced teachers would learn on seeing the tapes as to how lectures could be given.

(2) Many of the colleges particularly in the mofusil areas do not have adequately qualified staff, equipped laboratories and libraries. Efforts are being made to strengthen these colleges. One of the approaches that is being followed to strengthen the existing system is in relation to orientation and refresher courses for college teachers. It has been decided that every new teacher either in a college or in the University must undergo an orientation course, whereas the older teachers be provided with an opportunity to refresh themselves every third year. Such orientation and refresher courses have been conducted by the University for the last two years and the results are encouraging. The University Grants Commission have now approved of our proposal to establish a Staff Academy for such orientation and refresher courses.

(3) As stated earlier, some of the affiliated colleges are well established, have a good standing and are progressive. In the monolithic system of affiliated colleges, all the colleges with varying degree of attainment and standing are all bound together to follow the same syllabi, follow the same system of evaluation, etc. This stifles initiative and does not allow any new and innovative programmes to be undertaken. In order to allow flexibility in the system and give freedom to teachers to initiate novel programmes of education and evaluation, the University is proposing to give autonomy to some of the developed colleges.

(4) Some efforts are being made to pool resources on the district level to provide postgraduate education in some subjects.

(5) Undergraduate teaching programmes in the country have become stereotyped and somewhat irrelevant. There is no correlation with what the boy learns and what he is expected to do or will be called upon to do in life. All the students go through the same course which has a heavy bias on storing uncorrelated information. The University, therefore, decided to restructure the courses at the undergraduate level. This University with the help of the UGC undertook a pioneering step in this regard a few years ago.

The restructured course unlike the conventional courses has the following components : (a) a foundation course, (b) conventional disciplinary course, (c) applied course dealing with practical applications of the knowledge the student acquires in the conventional courses, (d) project work or field work, and (e) personality development courses such as NCC, NSS etc. The aim of restructuring is to develop the total personality of the student by imparting knowledge, developing skills and attitudes and promoting initiative as well as promoting socially relevant work. These restructured courses have been introduced in seven colleges as a pilot experiment. This experiment has been hailed at the UGC and it is suggested that we may expand this programme to include other colleges.

(6) The University has undertaken another pioneering experiment and that is to decentralize the University administration by creating district sub-centres.

(7) The University continually tries to update existing courses and to introduce new courses at the undergraduate level. Looking at the deep inroads which electronics is making in every branch of human activity, the University introduced electronics as a subject on par with Physics, Chemistry etc. at the undergraduate level. The University trained the teachers, developed and produced experimental kits for the colleges. This course has been very popular.

The University designed a new course leading to Bachelor in Computer Science, which was introduced in some select colleges. This integrated Bachelor in Computer Science course has become very popular. The University is also planning to introduce an integrated course in Bachelor in Life Sciences.

(8) In an effort to diversify educational programme at the undergraduate level and make education more relevant and meaningful, the University has developed a concept of community college. The community colleges are expected to train students to serve the specific needs of the community in which it operates and in turn draw its sustenance and support from the surrounding community.

(9) The University has also undertaken pioneering step to introduce a large number of training programmes leading to certificates and diplomas. The University carried out a detailed survey of the industrial infrastructure in and around Poona. The Univer-

sity has also worked out an employment opportunity profile afforded by some 5500 small-scale units and 180 large and medium scale industries. In addition, the University has introduced courses such as B.Sc. (Applied) in electronics, computers, environment, hospital management, etc. These training programmes are highly popular and supplement the conventional and broad-based educational programme.

Examination Reforms

In the opinion of the University, evaluation should form an integral part of the educational process. The University established, with the assistance of the University Grants Commission, an Examination Reforms Cell. Various progressive steps have been taken by the Examination Reforms Cell. The most important being detailing and amplifying the syllabi and preparation of question banks. Until recently, there was a stipulation that 50% of the questions in the actual examination should necessarily be from the question bank. However, last year it was decided that question banks should serve as an aid to the process of education and not a constraint on the examination.

The University introduced a system of Central Assessment in which examination papers for a given examination are assessed at one place by a number of examiners after jointly analysing the question paper and rationalizing the process of evaluation.

Only last year, the Examination Reforms Cell embarked on a novel experiment. The present examination system has essentially two drawbacks and these are : (1) the system lays too much importance on memory rather than on understanding, and (2) the system of evaluation is highly subjective. The Examination Reforms Cell identified the various qualities for which the students need to be evaluated. These are (1) capacity to analyse situation, (b) comprehension, (c) logic and reasoning, (d) memory, (e) innovativeness and model building capacity, and (f) communication skill. The examination papers were set in each subject to test these qualities. Such an examination provides a complete profile of the students. Some students are highly innovative but are weak on memory. Unfortunately, the present system of examination which lays great emphasis on memory weeds out the innovation for such innovative boys and girls who are weak on memory. The University is exploring the possibility of introducing this new system in some examinations.

Fine and Performing Arts

This part of the country has a very rich tradition in music, dance and drama. Marathi stage is highly developed because of the contributions of a large number of artists like Bal Gandharva, Hirabai Badodekar, Jyotsna Bhole, Bhalji Pendharkar and several others. Through a course of dialogue between such eminent artists like Pandit Bhimsen Joshi, Jitendra Abhisheki, Rohini Bhate, Jyotsna Bhole, Jayram Shiledar and others, it was suggested that University should introduce courses in music, dance and drama. These courses have recently been started under the guidance of these eminent men and women. In these courses, emphasis is laid on performance and practical training and both these are being carried out in accordance with the ancient Guru-Shishya Parampara.

Adult Education

The University is very actively participating in National Adult Education Programme carried out through 1,000 centres operated through the help of affiliated colleges. The work of these centres has been applauded all over the country. Similarly, University has taken a leading role in preparing material for educating the adult and in using modern electronic media such as the radio and television for eradication of illiteracy.

Sports and Corporate Life in the University

While advancing the frontiers of knowledge and applying the known and the acquired knowledge to solve the perceived problems of the society, the University attempts to promote corporate life by promoting sports and cultural activities. Our sports facilities are awefully inadequate. However, with borrowed facilities, our students have performed extremely well on the sports field and athletic ground. They have won several championship in Inter University tournaments, participated in national and international competitions This University has been adjudged on the basis of its performances as the THIRD amongst some 170 and odd universities. The University has planned, in collaboration with local industries and philanthropists, a Sports Complex and it is hoped that our dreams will soon become a reality.

Hope and Dedication

The University of Poona is marching ahead on all fronts and developing rapidly and yet there is long way to go to become a centre of learning comparable to the best anywhere in the world. Although, we are happy at the progress, we realise that there is no room for complacency. However, given the support of the society, the dedicated efforts of the faculty to excel and the motivation of the students, we have every hope that we will be able to march ahead towards excellence. □

REVIEW ESSAY

EDUCATION AND DEVELOPMENT : THE INDIAN EXPERIENCE

K.K. Balachander*

Ansari M.M., **Education and Economic Development**, Association of Indian Universities, New Delhi, 1987, pp. XVII + 57, price Rs. 25/-

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Planning of education as a facet of economic growth was one of the important policy objectives which received particular emphasis in many countries from the beginning of the sixties. Till late fifties, physical capital was considered as the key button which, if pressed hard enough, would set in motion the economic process, which would result in raising the future output. Although the demand for education was strong, and the spread of education was thought to be an index of social advance, most governments had as yet no specific conception of the relation between education and development. As a result, allocations to education proved to be difficult to decide upon in any rational and consistent way.

A series of empirical studies carried out in early sixties on the nature and causes of economic growth over a long historical period in highly developed countries revealed that, in reality, physical investment accounted for only a part of economic growth. If the growth of national product over a (long) period is such that physical capital alone does not account for the whole increase, the remainder or 'residual' must be due to a variety of other factors. Although varying estimates were made by different economists about the components of the residual factor in economic growth, it was broadly accepted that a substantial portion of it could be accounted for in terms of a rise in productivity which in turn, was due to improvements in knowledge, skills and capacities of the people. Thus the attempts to explain the residual ended up in discovering that upgrading of human resources through education could have long-run favourable effects on the efficiency of human beings as productive agents, and that expenditure on education is analogous to investment in physical capital. By late 1960s, there was a general agreement among economists, educationists, politicians and planners that education was a key change agent for moving countries along the development continuum. A literate and educated population was regarded not only more productive but also desirable. To toletate illiteracy and under-education was to tolerate wastage of human talent potentially available for society's benefit. The post-World War II development of Japan and Germany was generally regarded as the classic example of education being deliberately utilised as a contributory factor to economic and social development.

When poor countries enter upon the process of developing their agriculture and industry, it was argued, there is a tendency to invest too little in human capital relative to what they invest in non-human capital. Skills and knowledge useful in their economic endeavour, or, in other words, the human dimensions of development, get neglected. These countries should, therefore, regard most of their outlay on education as an investment since economic development must be even more important for them than the advanced ones. It was also pointed out that it is in countries with a high degree of education that there is a readiness to accept change and development that are appropriate to a modern economy. Education enhanced man's capacity to absorb, diffuse and utilise new knowledge and is the basic key that unlocked the door to productivity.

The upshot of all this was a clear pointer to laying greater emphasis on rasing the educational level of the people in many developing countries. Education was no longer considered a 'luxury', or a privilege and pleasure of the elite, or the private concern of individuals/parents; it was accepted as the collective responsibility of the community. A new horizon in the concept of capital and the possibility of using investment in education as a parameter of growth instead of allocating resources to the sector of education on a residual basis, as had hitherto been the practice, was opened. Also the concept of education as an investment creating human resources for development emerged at a time when the idea of planning gained considerable ground in many less-developed countries. There came into vogue the integration of educational planning (or broadly human resources planning) with the overall planning.

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The Educational Options

What are the priorities among the educational options as far as less-developed countries are concerned, and has India been able to use education as a vehicle of economic development ?

(a) Illiteracy is the real stumbling block in the way of economic progress in the less-developed countries, and hence priority should naturally be given to universal elementary education. The highest social rate of return, as many studies reveal, is to be had from additional investment in elementary education, mainly from completing the fifth to the last elementary year. This high return relative to secondary and higher education is sufficient justification for renewed emphasis on development of this level of education.

The strategy adopted by many developed countries, in their earlier stages of development, was to built their educational structure block by block, upwards from the foundation. Their first goal was the attainment of universal elementary education, meanwhile building a modest core of secondary and higher education. After reaching the stage of universal elementary education, a more generous attitude towards secondary education was taken meanwhile keeping higher education still tightly under control. Only when secondary education had become almost universal, they went about transforming their narrow or elitist system of higher education into a mass one. Once a country reaches a desirable level of education at lower levels, the expansion possibilities naturally are only in the higher stages, and that is what is being witnessed in the developed countries.

If a developing country desires that its educational system should become the handmaiden of economic development, it should first concentrate on the base of the education system, i.e. elementary education. Giving an important place to this level of education by upgrading resources to it is well-justified. The provision of minimum education and functional literacy to all promotes significant behavioural and attitudinal changes at the level of both the individual and the community which are very essential in the process of economic development, especially in low income countries. The experience especially of Japan and many socialist countries shows that literacy by itself can contribute a great deal to self-development. and provide the necessary basis for human resources development. Adam Smith, Alfred Marshall and many other earlier economists had insisted on the importance of education in the formation of human capital and the decisive nature of the latter in the working of the economic system. Smith had stated long ago that by providing education of an 'elementary' type to the mass of the people, the State could derive no inconsiderable advantage. Although it would entail some cost to the Public Exchequer, it would, according to him, surely repay that with a profit. "The more they are instructed" said Smith, "the less they are subject to delusions of enthusiasm and superstitions, which among ignorant nations, frequently occasion the most dreadful disorders. An instructed and intelligent people, besides, are always more decent and orderly than an ignorant and stupid ones.......... They are more disposed to examine, and more capable of seeing through, the interested complaints of faction and sedition and they are, upon that account, less apt to be misled into any wanton or unnecessary opposition to the measures of Government". Thus he who was against State intervention in personal and social life, except in certain well-defined spheres, had observed that education (of an elementary type) was one area where the State should intervene with finance because it developed not only 'aptitudes' but also 'attitudes' conducive to economic progress. Its priority followed naturally from the assumption that it was regarded as a matter of national concern undertaken in the interest of the community as a whole.

A minimum literacy rate of 40 per cent is considered as necessary but not a sufficient condition for a sustained level of economic growth. However, it is contended further that industrialisation and more rapid economic expansion cannot occur until 70-80 per cent of any population is literate. To this extent it seems that at least for a certain level of economic development, a fairly high level of literacy is required. (Fagerlind and Saha 1983).

(b) Since education is looked upon as a kind of economic and social equaliser, as it expands, it should be availed of by all classes of people. The whole concept of education for the elite will have to undergo a change and replaced by the concept of education for all. If the goal of education for all has to be attained, efforts will have to be directed upon enlarging the intake of lower income children (especially from the rural areas of the country) and bringing down the tremendous wastage on account of 'dropouts'. The internal efficiency of school investment process also tends to the highest when the dropout rate is near zero.

Since the main reason for the high dropout rates (and children not joining schools at all) could be the poverty of vast majority of the population, a real solution to it would, therefore, be taking some positive steps to alleviate the economic disadvantages of children/parents who find it difficult to avail of the educatioonal opportunities. External inequality does find its way into the school. Besides this, the universal access to education should be organized in such a way as would equalise education in terms of quality. Only this way school can be made an 'agent for reducing social/economic inequalities. If better education is offered only to those with most economic/social privileges, the inequalities will get accentuated.

(c) Just a large increase in facilities for elementary education may not be enough; the education provided should be of good quality. The expansion of bad education can only be counterproductive. It has also to be intimately related to real life situations—local, cultural, economic, etc.—and the problems people daily encounter. Attention needs to be focussed much more fundamentally on what is taught, and how it is taught, in order to promote economic development. The curriculum should be such that it generates among the students a positive attitude towards life and work, which certainly has economic significance. When what is taught is of doubtful value (or even disvalue), there would be little point in arguing about its equal distribution or its contribution to economic growth. The proper implementation of the programme of universal elementary education of quality will also need immense academic inputs in terms of organisation of a large band of efficient and well-trained full-time as well as part-time teachers, new teaching and learning materials, the creation of a highly decentralised system of administrative and financial support, etc. These educational programmes need to be carefully monitored and evaluated.

(d) Extending the level of facilities for education among all regions and in all parts of a region equitably also form one of the main objectives of public expenditure on education. More institutions need to be provided especially in rural/backward areas, and serious efforts be made to upgrade those of poor quality already established there so that they can attract more pupils from these areas. In many advanced countries, extension of appropriate educational facilities into the remote parts was one of the important accomplishments in the early stages of their economic development. Some developing countries like China and Cuba have also succeeded in this and their literacy rates have naturally gone up. Adequate community support was also forthcoming in implementing these tasks. (In India, in the State of Kerala, studies have shown that the existence of a community-based, voluntary and non-governmental sector for providing education at various levels and a network of roads linking rural and urban areas acted as a major determinant of the high rates of enrolment and retention in primary schools and of literacy).

(e) According to Schultz, when account is taken of the benefits bestowed on the next generation, the highest social rates of return are to be had in developing countries from investment in the education of females, and therefore this should be placed high on the agenda. In developed countries, almost virtual parity has been attained between male and female participation (Schultz, 1972). Women, Schultz adds, play an important role in 'intergenerational' transfer of acquired ability in a family. The educational attainment of the mother is among the most important determinants of a child's future and economic success; the child, in such an environment, receives a 'head start'. Even if some of them (women) are forced to withdraw from the labour market to devote themselves to their families, thus depriving society of the benefit of certain 'externalities' which education might generate, these must be set off against the 'intergenerational externalities' which may be generated by them within the family. "If the greatest single obstacle to improvement in general living conditions is the continuing population growth, and if the social, economic and educational status of women significantly affects fertility levels, then the educational opportunities available to women are of crucial importance". (World Bank, 1980).

(f) Although investment in human capital (by way of education) enhances the future economic well-being of a developing country, the 'pay off' from that investment depends upon the active setting of 'successful development' within which "the additional skills and abilities associated with more education are in demand and the rates of return to the investment in them become.........as favourable as the best investment opportunities". (Schultz, 1972). If a growing proportion of the school leavers and graduates are not assured of employment, or appropriate employment, the investment in the educational system will be an investment in idle human resources. Under such a situation, further rapid expansion of secondary/higher levels without efforts to create meaningful employment opportunities will prove to be self-defeating and a drag on the economic system. There has, therefore, to be a proper linkage between education, employment and economic policies.

(g) Since qualitative improvements in education constitute the essence of human resources development, greater attention will have to be given to this aspect. Quality should not become a casuality in the process of expansion of education. If it does, it will be really bad—especially when international competitive forces in skill-oriented activities (originating from advanced countries) are operating at full swing. Education, especially at higher levels, will be required to acquire a new role in response to the knowledge explosion in all fields. While framing the course contents, efforts should be made to move forwards, and not to slide back. Educational planning can be meaningful only when the policy makers spell out clearly the qualitative aspects. They should also indicate how, or the manner in which, excellence can be achieved, and the priority that should be accorded to it within the resources available.

The pay off from investment on education depends upon conformity of the various points mentioned above in the case of less-developed countries. The advanced countries have been successful in achieving rapid economic development by raising the educational level of their people because it took place under the above setting wherein results could be achieved. These are important factors and need to be given careful thought while planning for education in the less-developed countries. The basic mistake in the approach India adopted was that it sidetracked or ignored these stipulations. That is the reason why education is not producing that kind of a miracle, or higher economic growth, as was expected of it. The situation, evidently, calls for radical changes.

II

Literacy : Failure to Take Off

The most glaring failure of the Indian education system is evidenced in the poor literacy rates. This has left a deep scar on the nation. The Education Commission, which had looked at the problems of Indian education in a comprehensive manner, had warned as long back as in 1966 that

> "the existence of the vast masses of non-literate people in our country, which prides itself on its noble traditions of learning, is humiliating.... An effort commensurate with the magnitude of the task of eradication of illiteracy is inconceivable unless there is a clear conviction on the part of the national leadership that the education of the masses of non-literates has a direct bearing on economic and social progress and on the quality of national life.... We think that the problem must be faced resolutely, and realistically, and we are convinced that indifference to it will not remain unpunished."

The recommendations of the Commission were however not headed to and the struggle against illiteracy lost its urgency.

India had 300 million illiterates in 1951; the number in 1981 was around 437 million—with Uttar Pradesh accounting for more than 80 million followed by Bihar with 50 million. Although the percentage of literacy improved from 16.6 per cent to 36.2 per cent between 1951 and 1981, in absolute numbers the total illiterate population has grown. The most crucial segment of the population from the point of view of the 'quality' of future generation is women, but against the national average of literacy of 36.2 per cent, the rate among women was just 24.8 per cent in 1981. The situation is serious in rural India where the literacy rate is just 29.7 per cent (and among women still lower, being only 18 per cent). This underlines the magnitude of the problem and the efforts that are required to be mounted. According to the World Bank estimates, India will have the dubious distinction of having the largest concentration of illiterate population in the world by the turn of the century—500 million—and this will constitute a little over half of the world's illiterate population (currently it is one-third). Among the 34 countries in the low income group, the literacy rate in India is just 36 per cent as against 58 per cent for the group.

India has a long way to go towards the fulfilment of the constitutional directive of providing free and compulsory education upto the age of 14 (the dropouts at this level are also enormous representing a wastage of precious resources). The country is already 28 years behind the time stipulated in the Constitution (i.e. 1960) on achieving this aim. Still more serious is the neglect of adult education which is particularly important in a less-developed country. And it is needed all the more in order to make elementary schooling more effective since the dropouts are more common in illiterate surroundings.

The problems faced in higher education are precisely the opposite of those faced in lower levels of education, especially at the elementary level. There is no question here of inadequacy or slow growth; on the other hand, the entire sector of higher education has experienced unplanned expansion—without taking into account, in quantitative and qualitative terms, the manpower requirements for achieving a specific level of development. Insofar as it raises demand to levels inconsistent with labour market situations, its positive contribution to productivity is doubtful. The importance of the people as a resource can be enhanced only when they are active participants in the development process. As observed by Peter Drucker, the human being becomes a resource only if trained, developed and allocated to productive work. Little constructive effort has been made either to tackle the problem of educated unemployed or to reorient higher education to suit the needs of the economy.

There has no doubt been arise in the proportionate share of higher education (accounting now for nearly 30 per cent) in total (recurring) expenditure on education, but it loses much of its significance when it is seen in the qualitative context. With enrolments rising faster and costs escalating, there is a dilution of 'per pupil' expenditure leading to a sharp slump in academic standards. The funds are too thinly spread over too large a number (and area), and hence just not adequate. The paucity of funds has precluded the possibility of developing a system of higher education best suited to the genius of the people and the development of the country. It has forced the institutions to cut expenditures on many ongoing programmes—and the axe has fallen more on programmes that have high academic value especially pertaining to professional/technical education. A higher education system which shuns the pursuit of excellence will only take the country to mediocrity and stagnation.

Another disturbing feature is that the spread of facilities for higher education has been rather uneven in the country. There is a lack of harmony between Central agencies (including the UGC), on the one hand, and the State Governments, on the other, with regard to the growth and financing of higher education (as revealed in a study conducted by this writer in the Bombay University recently). Also the bureaucratisation and lack of dynamism, both at governmental and institutional levels, are hard to deny. Their capacity to change is slight, sometimes non-existent.

An Important Contribution

Ansari's study *Education and Economic Development* could not have been brought out at a more appropriate time. This well-documented Study pinpoints some of the major shortcomings facing the educational system in the country today which have impeded the rate of economic growth: (1) the failure to make a deep impact in the area of literacy, particularly among females; (2) non-achievement of universal primary education, and lack of incentives to attract and retain children especially from the lower income groups; (3) the failure to ensure equity in extending educational services across the regions as well as various socio-economic groups of the people; (4) fast deterioration in quality as well as irrelevance of course contents to the socio-economic. needs of the country; (5) inadequacy of facilities for education in general and elementary education, in particular; and (6) poor linkage between education-employment-economic policy. The author traces the under-performance of the education system in the above-mentioned areas to lack of political will and therefore inadequate allocation of resources to education.

The study seeks to examine the treatment given to education since the inception of planning. The author has analysed the influence of educational variables on selected indicators of development in the Indian context, and on the basis of such relationships, has tried to highlight the importance of education to social and economic development. According to him, insufficient attention to universalisation of elementary education and eradication of illiteracy—especially among those living in abject poverty—could be said to be responsible, to a significant extent, for poor performance of national economy during the past three decades. "In view of the dominance of agricultural sector in the national economy (in terms of both income generation as well as absorption of work force) one of the strategies of development should have been to improve the levels of enrolment and retention of students at the elementary stage of education so as to ensure that all the labour intensive sectors, like agriculture, agro-based industries and other small scale industrial units were provided with more literate and skilled workers." (p 20).

The study draws attention to the fast decline in financial allocation for education and calls for a deeper, more generous commitment to education. It also grapples with the task of comprehending the linkage between illiteracy and poverty. In short, the inadequate, inequitable, dysfunctional and disoriented nature of the existing educational system stands revealed in the study.

The paradox of the existence of a large number of illiterates and educated unemployed, which is an indication of an unhealthy economy and social tensions, has been well brought out. A long term education policy to deal appropriately with such problems is therefore indispensable, according to the author. The author has come out with some policy measures for effective utilisation and development of human resources through appropriate manpower planning which is in consonance with economic planning. He has pleaded for better labour absorption policies to minimise the problem of educated unemployment and associated economic losses.

Resource Crunch

Indian education is beset with major problems whose solution will surely require greater exertions—and these problems loom larger as the country has to enter more advanced stages of socio-economic development. Hence the need for a change can no longer be seriously disputed. What is becoming more evident is the serious resource crunch. The financial implications of enrolment of education, as projected by the UNESCO for 1985—goals that scarcely provided universal basic education—are that the GNP of developing countries like India should grow at least 7 per cent a year to keep the share of education at 1975 levels. The recent trends in the average annual rate of growth of GNP in India show that it is not even 4 per cent. Expressed as a percentage of the GNP, the expenditure on education rose from 1.3 in 1950-51, to 2.6 in 1960-61, and to about 3.5 per cent in 1985-86. This compares unfavourably with the corresponding figures in some advanced countries like the U.S.A., the U.S.S.R., Canada, Japan, the U.K,, France, etc., and even some developing countries, where it ranges between 6 and 8 per cent. The disparity is quite large. The Education Commission (1964-66) had recommended that the expenditure on education in India, in terms of percentage of national income, should be raised to 6 per cent by 1985-86 but the country is far behind this target. Considering India's population, the level of investment on education is shockingly low. An analysis of the behaviour of the Five-Year Plan developmental expenditure also shows that although the Plan allocation on Education increased from Rs. 153 crores in the First to Rs. 2524 crores in the Sixth Plan, the share of the educational sector in total Plan outlay has consistently declined—from 7.9 per cent in the First to 2.8 per cent in the Sixth Plan. Education has got a very low priority in the development spectrum, though it is a vital sector. Dr. V.K.R.V. Rao, in this context, poses a question: "Why people, who so readily recognize the superiority of modern techniques in industry or agriculture and are willing to find large funds that its adoption necessitates, are so blind as not to see the relevance of the extension of this attitude to education, which after all is one of our major forms of investment for economic development ?" (Rao, V.K.R.V., 1966).

There is perhaps no sector of national activity where the Government—both at Centre and the State level—has dragged its feet as in education. In fact, recourse to cut in investment on education was most often taken to counteract short-run economic fluctuations. Whenever the government budgets went away, educational schemes invariably where the first casualty of the cuts. Such short term objectives of financial policy were also proving to be detrimental to the longterm development and implementation of many decisions to which the Centre/States were already committed. Even the funds allotted to education were not fully used in some States or diverted to other sectors of State expenditure. (The State of Kerala, however, is an exception to the above rule. Despite its relatively low per capita income, this State could march ahead in educational development. Here, it has to be noted, private initiative played a significant role). Education for the weaker sections continue to be regarded by many State Governments as an activity deserving only the 'left over' funds, although it is those at the base of the socio-economic pyramid who pay a sizeable share or taxes (raised mostly through indirect taxes which impinge more on the vast mass of the poor) that goes to subsidize the education of the privileged who occupy the apex and get the best and highest paying jobs (Coombs, 1985). Much of the above problems arose in the past because education was a State subject—till the 42nd Amendment was adopted in 1976, the Centre had no *locus standi* in the matter except to determine and coordinate standards in respect of higher education. Education was however included in the Concurrent List in 1976, but there has been little follow-up action. According to Sharma, "the dilemma of the education system has been that owing to economic and social development the demand of and expectations from the education system (at all levels), both in terms of quantity and quality, have increased, but the resources made available to the education system, particularly after it is brought under the Concurrent List, has been squeezed successively. In this squeeze, the lead role has been played by the federal government and, amazingly, the federal government has also played a lead role in making the case for improvement and development of the education system." (Sharma, G.D., 1986).

Ansari is right in saying that "the approach to development planning has suffered owing to lack of proper conceptualization of the role of education in creating conditions for national progress" or, in other words, failure to understand the intimate connection between educational reconstruction and economic development. If the Government is sincere in its desire to take India to the 21st century, it will have to give a central place to education It has adopted recently a National Education Policy (1986) followed by a Programme of Action for its implementation. One redeeming feature of the New Policy is that it treats education as a crucial area of human resource development. It is considered to be a condition not only for development but also for the survival of the nation and the individual. Also the Government has (again) committed itself to the main tasks of strengthening the base of the educational pyramid, i.e. elementary education, tackling the problem of adult illiteracy, expanding the provision for vocational education, etc. Many developing countries today appear to be veering round to the view that illiteracy is the real stumbling block in the way of economic growth; and hence priority should be given to universal primary education. Besides, as Ansari states, the quality of higher education also depends *inter alia* on the inputs of elementary education which unfortunately have not been paid due attention by the policy-makers (p. 39). The new thrust emphasises two aspects : (i) universal enrolment (and retention) of children upto 14 years of age, and (ii) a substantial improvement in quality. These efforts will be coordinated with a network of non-formal education. The implementation of this programme is the challenge of today and tomorrow. In fact, the shame of having kept 64 per cent of the people unlettered has to be shared not only by the Government but also by each one of those who have had the blessings of higher education.

All these changes, which the Government hopes to pursue simultaneously during the next few years, will assuredly entail enormous expenditure. Anyway, there is no disputing the fact that the crucial areas which need first and foremost attention are elementary and adult education so that illiteracy may be eradicated by 2000 A.D. No alibi like scarcity of funds should be allowed to hold back these programmes because these represent the biggest, but long neglected, sectors and increases in allocations (as warranted by their requirements) have been stalled too long. These tasks have to be approached with an air of commitment seldom seen before. The battle against illiteracy can be the harbinger for economic, social and political stability, and most important, national solidarity. By all accounts, it should be waged as part of the anti-poverty campaign. It may be worthwhile quoting Ansari :

> "The relative growth performance of the primary level of education has been significantly lower than other levels and that the low performance is owing mainly to the lack of adequate educational facilities and incentives to attract and retain the children, especially of poor families in the schools for sufficient number of years. This by itself recommends for a reasonably higher magnitude of investment on infrastructural facilities at the elementary stage of education. Moreover, the prevailing socio-economic conditions in the country heavily demand for speedy expansion of elementary education for the following reasons. Firstly, it is largely the children of poor families who have been deprived of the fruits of education. The fulfilment of the national desire for building up an egalitarian society, therefore, requires that due attention must be paid urgently to universalisation of elementary education. Secondly, the universalisation of primary education would undoubtedly enhance the socio-economic levels of the families which fall below the poverty line Thirdly, since in all previous Five Year Plans the realization of targets has been lower than those originally set, the achievement of this objective by the year 1990, which has been presently fixed by the policy-makers, is seemingly difficult.... The target is not likely to be realised even by the year 2000 A D., unless of course, the education policy lays heavy emphasis on implementation of educational programmes through appropriate strategies." (pp. 39-40).

As far as higher education is concerned, the Government intends taking steps to transform it into a vibrant one with a commitment to development and change If this has to be fulfilled, the future policy must be related to changes of a qualitative nature, instead of quantitative expansion as in the past. This can be achieved through giving greater attention to real academic programmes, such as teaching/research, production of teaching/reading materials in sufficient numbers, teaching aids, libraries, laboratories, equipments, etc. A higher outlay for these activities is imperative, but as Ansari anticipates, with the emergence of claims from other sub-sectors of education like elementary and adult education as well as vocational and professional education which have relatively been neglected for long, necessary finances may not be in the offing for higher education as compared to the pressure of demand. As evidences show, the lower levels of education are likely to get preferential treatment, while higher education will have to compete for public funds. (p. 45). In this context, a second look at the existing pattern of financing higher education, under which across-the-board subsidies are provided to all students, regardless of income or academic background, may be necessary. How justifiable is the existing liberal subsidy when (i) primary education whose provision affect the overall development of the society, is languishing for funds, and (ii) when there is a disproportionate number of students from the well-to-do families in colleges/universities ? According to Sen, there is an enormous amount of 'primary educational sacrifice' that is involved in the policy of faster expansion of higher education. "The right to higher education is the right of the educationally privileged to study further at the expense of the society irrespective of one's academic abilities, and it is a right that is exercised by throwing children out of schools" (Sen, Amartya, 1970). By enhancing fee rates—which have remained static for a long time at least for those categories of higher education wherein employment opportunities and private gains later are higher—there would not only be more resources to reinvest in the system but to extend financial assistance to students who really need and deserve it.

Conclusion

Ansari has done well by focussing attention as to how to make education a vehicle for economic and social change. It is a good piece of research work, with new dimensions, on a livewire issue. The Association of Indian Universities has brought out a number of useful studies in the area of Economics of Education, and this well-presented, well-documented work is indeed a useful and valuable addition to it. The slim volume provides enough food for thought to planners, policy makers and educationists. The reader will find it difficult to disagree with the author's findings/conclusions, the importance of which has increased further in the light of the new National Education Policy.

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Indira Kala Sangit Vishwavidyalaya

KHAIRAGARH (M.P.)

No. Gen./88 **Dated the 12 May, 1988**

ADMISSION NOTICE

Admission shall be made upto the 31st July, 1988, in the University Teaching Departments for prosecution of studies in Vocal Music, Instrumental Music (Sitar, Violin, Tabla, Sarod, Flute) Musicology, Folk Music, Sugam Sangit, Kathak Dance and Bharat Natyam Karnatak Music (Vocal, Violin), from Certificate Course to Post-Graduate level courses. Bachelor and Post-Graduate Painting Courses and M.A. History of Indian Art & Culture are also available. For Foreign Students condensed courses have been framed. Separate arrangements for Girls Hostel available, Research Facilities for Ph.D./D.Mus. available with excellent library facility.

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M.K. Gangajaliwale
REGISTRAR

Group Discussion-cum-Orientation Programme on Financial Administration in Universities

University of Poona

June 6-10, 1988

PROGRAMME

Monday, June 6, 1988

9.00 a.m. Registration
9 30 a.m. Inaugural Session
Welcome
—Prof V.G. Bhide
Vice-Chancellor
University of Poona

9.40 a.m. Introductory Remarks
—Prof S.K. Agrawala
Secretary, AIU

9.50 a.m. Presidential Remarks
—Dr. P.V. Salvi
President, AIU

10.00 a.m. Key Note Address
—Dr. D.M. Nanjundappa
VC, Bangalore University

10.30 a.m. Vote of Thanks
—Shri Anjni Kumar

11.30 a.m. Introduction of the participants & Preliminary discussions

2.30 p.m. Problems of Financial Management —an Overview
Dr. V.R. Panchmukhi

5.00 p.m. Discussions & finalisation of Group Report

Tuesday, June 7, 1988

9.00 a.m. Budgetary reforms—changing role of budgets in Universities
—Dr. G.D. Sharma

11.30 a.m. Computers in financial accounting & management practices
—Dr. H.N.N. Murthy

2.30 p.m. Case study
Unadjusted Advances
Redesigning of Forms
—Shri Shital Prakash

5.00 p.m. Discussion & finalisation of Group Report

Wednesday, June 8, 1988

Visit to Educational Institutions/Tata Management Training Centre/Local Excursion

Thursday, June 9, 1988

9.00 a.m. Performance and zero base budgeting
—Dr. K.L. Handa

11.30 a.m. Effective utilization of resources in New Education Policy
—Dr. K.L. Handa

2.30 p.m. Role of Computers in University Administration
—Dr. S.C. Mehta

4.30 p.m. Managerial Effectiveness—
Role and functions of Finance Officer
—Dr. S. Neelamegham

Friday, June 10, 1988

9 00 a.m. Presentation of Group Reports & discussion
11.30 a.m. Formulation of recommendations
2.30 p.m. Valedictory function
—Welcome
Dr. S.N. Navalgundkar
Pro-Vice-Chancellor
University of Poona
—Address by Chief Guest
Shri J. Veera Rahgavan
Secretary, Ministry of Human Resource Development
—Concluding Remarks
Shri Anjni Kumar
Joint Secretary, AIU
—Vote of Thanks
Shri A.H. Thorat
Registrar, University of Poona

Note :
1. Every day in the morning from 6.30 a.m. to 7.30 a.m. arrangements will be made for yogic exercises;
2. Film shows/Local visits may be arranged between 6 & 8 p.m. daily.

The Purpose of Education

"Character building is what I would consider as a prime objective of any educational programme. There is one aspect of character building which I feel has relevance in today's age and society. This is the inculcation of a value system that emphasises the pursuit of excellence, the nurturing of a scientific temper and developing a human approach to all aspects of our working life", said Dr. M.R. Srinivasan, Chairman, Atomic Energy Commission and Secretary, Department of Atomic Energy, Government of India, while delivering the Convocation Address at the 78th Annual Convocation of the University of Poona. Excerpts

It is a cliche to state that education plays an important role in the all round development of a society. In reality, education in India has generally been treated as a means to obtain an academic qualification and thereafter a job or livelihood. Given the opportunities for employment or earning a livelihood in the country, one cannot blame the younger generation for adopting this approach. But I would request the young graduates to pause and ask themselves—is that all there is to one's education. The time we spend at school and college is no doubt to be spent in enlarging our academic knowledge. But more importantly it is also to learn about our role in society and to prepare us for a constructive participation in society. In this respect character building is what I would consider as a prime objective of any educational programme. There is one aspect of character building which I feel has relevance in today's age and society. This is the inculcation of a value system that emphasises the pursuit of excellence, the nurturing of a scientific temper and developing a human approach to all aspects of our working life.

I am aware of the increase in opportunities for higher learning now existing in our universities thus obviating the need for moving to foreign universities. What is needed is to structure the type and nature of such higher education to fit into the ambit of national development to realise the hopes and aspirations of our people for a better tomorrow.

I cannot do better than to quote two important aims of this university which point in this direction. They are :

(1) While not losing sight of its essential character as a University i.e. a seat of universal learning which recognises no frontiers or barriers except those of the human mind itself, to keep in view the special needs, interests and traditions of Maharashtra and its people and in particular its economic resources, its special problems of agriculture, industry and commerce and generally the various aspects of its economic and industrial life.

(2) To diffuse widely the benefits of university education among all classes by organizing centres of extramural teaching and university extension activity and encouraging the production of popular literature on scientific and cultural subjects.

The objectives then lead me to think of the means of its implementation. It is appropriate for us to remind ourselves of the oft quoted statement of the late President John F. Kennedy : "Ask not what not the country can do for you, but what you can do for the country". This summarises the whole philosophy of the role of individuals and social groups in improving social awareness and implementing changes that are vital for protecting and preserving the bounties of nature and freeing humanity from the ills of society. We need to have a vigilant and vibrant force in the form of the young men and women such as those gathered here today to dedicate themselves to the conservation of the environment and ecosystems and to support national endeavours for eliminating poverty and improving the quality of life of our people.

While centres of excellence built around outstanding men are very important, in many fields of modern scientific endeavour, success is achieved through interactive efforts of large groups. The days ahead are for group achievements where the role of humanities and the social sciences is as important as the scientific and technical skills of the individuals in the group. I am aware of the joint TIFR/Physics Department programme run by the University and am glad that the GMRT Telescope project located close to the University will provide excellent opportunities for the students to work in the fundamental areas of astrophysics and cosmology.

In a recent interview Dr. Dhillon Ripley, a close friend of India and an associate and admirer of late Dr. Salim Ali has a word of advice to us to accept and adopt only those technologies of the developed countries which are appropriate to our needs and setting. In this context, he questions the suitability of adopting some of the agricultural practices suited for temperate climates to our environment and expresses the fear that it might even lead to problem of desertification of large tracts of land. This therefore leads to the conclusion that we should display originality in finding solutions to our problems and not merely be imitative.

Let me first tell you something about the organisation I come from, namely, the Department of Atomic Energy (DAE). Our work in the past three decades has placed India amongst a few select nations in the world that have developed expertise in a wide range of activities relating to the peaceful uses of nuclear energy. The management of science and technology in the DAE has been notable for the absence of bureaucratisation, freedom given to scientific workers to pursue their work without rules and regulations hampering them and a participative style of decision-making. A special feature has been the pursuit of excellence, ever since the organisation was founded more than three decades ago by late Dr. Homi J. Bhabha. Our effort has always been to attract the best talent, encourage and retain them so that they give their best in their respective fields. We endeavour to maintain an environment in which outstanding work is rewarded, where each person is treated as a human being who has his or her own problems, rather than as a cog in the wheel of a big machinery. As an organisation working in a field that also concerns the public, we give due attention to environmental issues and allay public misgivings arising out of lack of information. We have also maintained a continuous interaction with the industry which has helped in the implementation of our programmes and which in turn has also enabled the upgradation of the general level of technology available with Indian Industry. Recognising the importance of electrical power for the country's economic development, DAE has taken up a nuclear power programme which aims at a generation capacity of 10000 MWe by the turn of the century. In the process of carrying out R & D in atomic energy, our scientists and technologists are working in some of the cutting edges of advanced technologies—like lasers, fusion, superconductivity, electronics, materials sciences, etc. These activities have led to several spin offs which have been transferred to industry so that the society as a whole benefits from our research and development programmes.

Coming from a scientific and technical organisation, I cannot help emphasising the role of Science and Technology (S & T) in our development. Despite the pessimism one often hears, we must realise that for a country which got its independence only 40 years ago, we have not done badly. Let us look at some basic facts : From being a chronic food importing country we have reached a stage when we could manage on our own, one of the worst droughts in history. There are also several quantitative indicators : Our gross national product and national income have multiplied nearly four fold, food production has gone up by 300%, industrial production by over 700% and electricity production by an impressive 4000%. No doubt, many of these achievements have been overshadowed by a fast growing population. And further, one can always say that we could have done better. This is a healthy attitude and a good antidote to complacency. Impressive achievements come about only if we have in us the desire to excel in everything that we do in our day-to-day life.

I am laying stress on the pursuit of excellence for the simple reason that barring some exceptions, there is a tendency in our country to accept and be satisfied with the mediocre rather than strive for excellence. History has shown that development and prosperity in any society in the world has come about by the recognition given to excellence—in whatever field. This in turn requires each individual to demand the best of his or her ability in whatever activity one is engaged in.

Self reliance in technology i another ideal which I would commend to you youngmen an women. It calls for the assimilation of one's own areas of scientifi and professional expertise as wel as the recognition of the need t have it suitably meshed in with th achievements of others so as t produce strong linkages essenti for them to be effective in overa technological advancement. I is then that innovation will resu in the birth of new technology. Th interaction between science, techn logy and industry is therefor necessary for reducing the gestatio time in the conversion of a scienti principle into an object of pub utility.

Today, most people recogni the fact that the significant achie ments in India during the past fo decades is in a large part attrib able to the emphasis placed on science and technology by the country's leaders ever since it got independence. This was contrary to the conventional wisdom prevailing at that time which felt that investment in science and technology would be a luxury for a developing country like India. But more important than achievements in science and technology per se, is the need for developing a scientific temper amongst our citizens. This is easily said but in reality presents a major challenge. I recall a statement by Will Durant in his monumental "History of Civilization" on the subject. He says, "Religions are born and may die but superstition is immortal". He goes on to add, "Only the fortunate can take life without mythology. Most of us suffer in body and soul and Nature's subtlest anodyne is a dose of the supernatural". This is not a feeling only of India but manifests in varying degrees in all societies. However, we seem to have more than our share of godmen, astrologers, fortune tellers, etc. Even those who pursue science as a career are known to fall a prey to supersitions. Often we exhibit a tendency to jump to conclusions which are unduly biased by emotional considerations. We have to realise that there are many sides to any issue and balanced approach which involves some give and take, is essential. One must objectively assess the pros and cons of any view point, weigh the priorities involved and arrive at workable solutions, rather than argue endlessly and thereby expending only our energy. For a developing country which is desiring to enter the modern technological age, a scientific temper therefore becomes a pre-requisite to ensure the success of any programme.

The rapid industrialisation of our country has brought in its wake a migration of population from villages to towns and cities in search of employment. The villages are thus bereft of the young and the able bodied while the towns and cities have burst their seams for accommodating the large influx of population resulting in slums and the attendant socio-economic problems. The quality of life of the people both in the villages and cities has thus suffered. We shall have to create large scale opportunities for employment in the rural sector and develop entreprenurial skills there. We should also provide the benefits of modern science and technology such as improved telecommunication, better means of transporation and better health and educational facilities. Only then can the process of population migration to the cities be arrested. In all these programmes which involve large sections of population, the universities have a lead role to play in inculcating an appropriate value system amongst the student population.

As we develop into a technology oriented and a more industrialised society, we have to avoid some pitfalls in the process. We have seen elsewhere in the world how this has led to endless materialism accompanied by a trend to dehumanise all activities. In India, we have always had the tradition of being a human society. This has to be maintained. In concrete terms this would mean retaining the bonds of family, and concern for fellow citizens and for the future generations to come. We must address issues like environmental pollution, examine ways to conserve our natural resources and especially how to control the growth of our population. I would like to stress the imperative need of reaching a consensus in our society on the question of population control. Without it all the efforts we are making at increasing the wealth of the nation for giving a better standard of life will be nullified by the addition of many more people to feed, clothe and shelter. In this respect we have much to learn from what China has done to bring down birth rates and they are already projecting a declining population trend commencing in the next ten or fifteen years. The over-emphasis in recent times on materialistic needs has led to our best talent being devoted to science and technology. You will agree that it is very necessary that we nurture talents in the arts, literature, music, humanities, commerce, economics, philosophy, and a host of other disciplines that are essential to develop a humanistic society. I sincerely wish that some of the talented youngsters graduating out today devote their careers in these fields which have great relevance to the long term well being of our country. It would therefore be necessary for you to adopt a holistic approach rather than a compartmentalised one.

Many of you young men and women would also be aspiring to work in your respective fields in some of the leading institutions abroad and this quest for knowledge is to be accepted as a legitimate means of catching up with the rest of the world. Nonetheless it would perhaps be most laudable for all of them to have their sights on the needs of their motherland like the eagle which soars high in the sky but has its sight firmly on the ground looking for its prey. It will also be my desire to pass this message across to all those young men and women working and living abroad to come and participate in building up a prosperous India. ☐

National Conference on Role of Universities in Implementation of New Education Policy

UNIVERSITY NEWS SPECIAL ISSUE

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Problems of Hill Area Development

The Geographical Society of the North-Eastern Hill Region (India) and the Department of Geography, North-Eastern Hill University jointly organized a seminar on "Problems of Hill Area Development with Special Reference to the North Eastern Region" at NEHU, Shillong. Sponsored by the Indian Council of Social Science Research, North-Eastern Regional Centre and North-Eastern Hill University, Shillong, the seminar was inaugurated by Shri P.A. Sangma, Chief Minister, Meghalaya and was presided over by Prof. R.K. Mishra, Vice-Chancellor, NEHU. Prof. M. Taher, Department of Geography, Gauhati University, delivered the keynote address.

Shri Sangma in his address emphasised the need for better data on land-records and tenancy relations. He also stressed the need for greater interaction of the region with the rest of the country through proper development of transport and communication so vital to the integrity of the nation.

He said that the hill areas of the country had to face certain problems different from other areas inhibiting the process of development. Difficult terrain, variable agro-climatic conditions, distinct socio-cultural features had led to the backwardness of these areas and their slow pace of development. These areas therefore drew the special attention of the planners right from the inception of the plan era after Independence. The emphasis on hill area development emerged from the growing concern over inter-regional disparities and the disadvantaged hill people. It was realised that these areas in the country could not be developed in isolation from the adjoining plains with which their economy was closely inter-linked.

Shri Sangma pointed out that in order to look into the problems, potential and strategy for development of the hill areas, various committees and task forces were set up by the Central Government. As a result of the findings of these committees, task forces and high-power groups, the Sixth and Seventh Five-Year Plan documents highlighted the problems of hill areas of the country and contained the special strategies covering linkages, infrastructural and organisational support, harmonisation of socio-economic growth with eco-restoration, eco-preservation, and eco-development, integrated watershed management with people's participation as the basis of hill areas development.

Describing the characteristics of the hill areas of the north east, Shri Sangma said that in recognition of the special characteristics and problems of these areas, the hill states of the North Eastern region along with some other states have been treated as special category states by the Government of India. Consequently, in determining the size of the Plans of these states, the Planning Commission gave emphasis on the actual developmental needs rather than the resource raising ability. Central assistance provided for the development of these states comes in the form of 90% grant and 10% loan.

While dwelling at length on the schemes for rural development, particularly poverty alleviation programmes drawn up on an all India pattern, Shri Sangma stressed the need for looking into local situations and local constraints and adapting these schemes to suit the requirements of individual states. Agriculture was another area where it was necessary to look at the pattern of development, entirely different from the pattern fixed for the rest of the country. Discouraging the practice of jhum cultivaiion, he opined that the thrust in agricultural production in the hill areas ought to be on horticulture which, among other things, would be less damaging to the ecology of the region. He asked for evolving a strategy for the setting up of widely dispersed small processing units for the agricultural produce of the hill areas. Any serious plan for the development of agriculture in the hill areas needed a significant component of storage, processing and preservation of agro-horticultural produce, he added.

Referring to the chronic shortage of skilled manpower in the region, Shri Sangma said that emphasis had to shift from general education to vocationalisation of education. It was necessary to make use of the District Manpower planning and Employment Generation Councils to study the employment in the districts and to identify the requirements of different categories of manpower. He thought that greater stress could then be laid on setting up technical institutions which are more relevant to the hill areas.

Shri Sangma also emphasised that the development strategy for the hill areas should take into account the principle of integration of the ecological, economic and sociological coordinates.

Prof. Mohammed Taher of the Department of Geography, Gauhati University, in his keynote address presented an outline of the problems which the north eastern region in general and the hill areas in particular were facing. He dwelt at length on the rugged topography of the north eastern region, about seventy per cent of which is covered by hills, mountains and plateaus. In spite of multifarious social and demographic developments in the region, the economic changes have been slow. With the help of data, he pointed out that the high rate of participation in work was not due to the capacity of the economy of the region, but a pathetic reflection of incapacity of the prevailing economy to generate surplus. Agriculture, with its meagre productivity, due mainly to the primitive methods of cultivation, engage about 32% of the total population of the region directly. He put the proportion of workers engaged in the secondary sector of industries in the hills at one per cent of the total population and that in the tertiary sector, especially in services, between 9 and 13 per cent. This state of economy of the region has resulted in a low per capita income of Rs. 911.00 as against Rs. 1163.00 of the nation (1980-81). He regretted the lack of infrastructural facilities in the region and stated that the hills region has a total available electric energy accounting for 0.34% of that of the nation.

Prof. Taher observed that it was in this physical, demographic and socio-economic background of the region, that measures are needed to be adopted for its all round development and the causes of failure to develop during the last four decades should help the scholars, administrators and planners to find out a workable methodology.

Over 30 participants from all over the country and 40 participants from Shillong and NEHU participated in the deliberations of the seninar which was spread over five technical sessions. After the two days of deliberations, the following recommendations were made :

(1) Land Records may be prepared specially in respect of registration of land on ownership basis consulting the village lyndohs, village mantris and village Durbers. These works should be preceded by a thorough cadastral survey of the entire region.

(2) Levels of development may be assessed at a micro-level in different areas before suggesting developmental measures.

(3) Fields cleared for shifting cultivation in a particular year should be replaced in a the subsequent year by quick growing useful tree which after the jhum cycl can be used before clearing again for shifting.

(4) Lack of infrastructural facilities specially in respect of transport and communication should be looke into and stress must be given for their quick development.

(5) Village level social organisation should be formed to implement and look after all developmental programmes including IRDP.

(6) The University and other research organizations should be associated in al developmental programmes.

Seminar on Autonomous Colleges

A two-day Seminar on Autonomous Colleges was held at the Gauhati University recently. Sponsored by the University Grants Commission (UGC), the Seminar was inaugurated by Prof. J.M. Choudhury, former, Vice-Chancellor, Gauhati University and was presided over by Prof, D.P. Barooah, Vice-Chancellor, Gauhati Uniuersity Shri Kamaleswar Bora, Vice-Chancellor, Dibrugarh University and Dr. J.B. Ganguli, Vice-Chancellor, Tripura University also attended the Seminar.

The seminar focussed on (1) Scheme of Autonomous Colleges—Necessity, Objectives, Relationship with the parent University, Strategies for implementation of the scheme; (2) Programme of action of National Policy of Education relating to the development of Autonomous Colleges and Teachers' Training; and (3) Restructuring of Courses at the undergraduate level.

The seminar generally accepted the revised U.G.C. guidelines for autonomous colleges and recommended to the Government of Assam. University Grants Commission and the Gauhati University authorities to take urgent steps in regard to following :

(1) To make suitable provision in the University Acts to enable the colleges and the University Departments to enjoy autonomous status on a selective basis, it being understood that the concept of autonomy and accountability implies that the autonomous units have the power of self-governance and decision-making in regard to academic programmes and administrative and financial matters.

(2) To take steps to formulat a scheme of incentives for University and college teachers as provided under 9(c) of the Plan of Actio (POA) on National Policy of Education (NPE), 1986.

(3) To make provision for cen

percent financial assistance from the Central Government beyond a period of five years under the programme of autonomous colleges.

(4) Having regard to the statement in POA (para 5.31), the present system of discrimination between the Central and the State Universities in allocation of funds should be eliminated. It was felt that to motivate the teachers of the colleges and the Universities the revised UGC pay scales for the teachers be implemented promptly. It was generally agreed that motivation of teachers is important for implementation of National Policy of Education in the field of Higher Education.

(5) To take steps for early setting up of State Council for Higher Education on the basis of the recommendations approved by the UGC.

(6) To take urgent steps in restructuring the Courses at the undergraduate level and in this regard the seminar recommends the following subjects for consideration of the appropriate bodies. To start with only one subject be introduced in each college :

Computer Science, Electronics, Bio-Chemistry, Industrial Chemistry, Food Processing and Technology, Instrumentation techniques, Material Science, Forestry, Diary farming, Petrochemicals, Land use techniques, Music, Dance and Dramma, Book keeping and Accountancy, Photography, arts, potteries etc., Hotel Management, Journalism and Mass Communication, Automobile-maintenance and repair, Population Education, Rural Banking, Co-operative Management, Entrepreneurship, Agriculture Marketing, Tourism, Environmental Studies, Nursing, Midwifery, Social Pathology, Physical Education, and Confectionery.

(7) To take immediate steps to introduce some of the application oriented subjects in permanently affiliated colleges from the next academic session.

(8) To take steps for intensive training for the Principals and academic staff of the concerned colleges selected for autonomy.

(9) To provide for adequate funds for appointing additional staff for subjects introduced under restructuring of courses.

A number of Vice-Chancellors of the North Eastern Region, local academicians, selected Principals of the affiliated Colleges of the region, Principals and teachers of the local Colleges, University teachers, State Government and University officials attended the seminar.

Emerging Dimensions in Accounting & Auditing

The Faculty of Advanced Commerce, Business and Industrial Management of Kanpur University organised a UGC sponsored National Seminar on "EMERGING DIMENSIONS IN ACCOUNTING & AUDITING" at the University recently. Besides the inaugural and valedictory sessions there were four technical sessions in which the following topics were discussed :

> Accounting and Auditing in the 21st Century, Accounting Standards in India and abroad, From Statutory Audit to Management and Tax Audit, Management Control Systems and Accounting, Cash Flow Accounting, Accounting for Price Level Changes, and Professional Ethics and Hazards in Auditing.

The Seminar was inaugurated by Dr. Gaur Hari Singhania. Vice-President of the J.K. Organisation, Kanpur and Dr. K.B. Agrawal, President of the U.P. Stock Exchange delivered the keynote address. The three-day seminar was presided over by the Vice-Chancellor Dr. B.N. Asthana while Shri D.N. Dixit, Chairman and Managing Director of the British India Corporation delivered the valedictory address.

The Seminar made a number of recommendstions including the one suggesting setting up of a Kanpur Management Association.

About 60 participants including those from Delhi University, Allahabad University, Jamia Millia, Aligarh Muslim University, and Institute of Chartered Accountants of India attended the Seminar at which over 35 papers were presented.

OUAT Reports. . .

The Orissa University of Agriculture & Technology (OUAT) has introduced a degree course in Forestry, a Postgraduate diploma Courses in Computer Science and a diploma course in Sericulture. The University has also established a Video Project in collaboration with the Memorial University, Newfoundland, Canada, which will greatly help in the transfer of technology to farming community in their own environment.

Under its literacy drive programme, the University has set up a Distance Education Programme for educating the semi-literate farmers on scientific farming through correspondence courses. So far, about 800 farmers have been enrolled for courses on different aspects of farming like Scientific method of groundnut production, rice cultivation, mushroom cultivation, cattle management, vegetable production, etc.

With the financial assistance of Ford Foundation, farm research projects with Farm Science Research have started functioning in the State at Phulbani, Dhenkanal and Puri districts. This programme will provide need-based farming technology to small and marginal farmers dependant on rainfed rice-based farming systems.

Advances in Mathematical Techniques

A three-day All India Conference on Recent Advances in Mathematical Techniques and Applications-II was organised by Dr. Y.S. Parmar Institute of Mathematical Sciences at Shimla from 18-20 May, 1988. Inaugurated by Shri Virbhadra Singh, the Chief Minister of Himachal Pradesh and attended by delegates from 18 states of India, Bangladesh and Nepal, the conference focussed on Bio-fluid Dynamics, Mathematical Physics, Mathematical Methods and Chaos, Stability and Turbulence. The conference resolved that more applicable mathematics such as used in Bio-Sciences, Medical Sciences, Social Sciences and in any other field to benefit the society be identified and attention paid to highlight it and train manpower to work in this field. It was also resolved that Dr. Y.S. Parmar Institute may act as the coordinating centre for this work.

News from Agril. Varsities

Rural Development and Eradication of Poverty

Sardar Tarlok Singh, former Member of Planning Commission delivered the Second Sir Chhotu Ram Memorial lecture at Haryana Agricultural University. "Intensive agriculture and intensive rural industrialisation, alongwith necessary social services and human resource development, adapted to the conditions of each region or area, hold the key to the development of agriculture and the eradication of poverty. They would also lead to expansion of employment, and productive use of the literate young men and women in the villages," observed Mr. Singh.

He explained the major issues in agriculture planning, in relation to poverty, referring to small industries and said, "Most small industry has gone to metropolitan and industrial and urban centres and their rural spread has been exceedingly small. Therefore, one of the major aims in view has remained unfulfilled".

The stagnation in agricultural production after 1983-84 and the severe drought which has prevailed over large areas in the country over the past year have created misgivings about the adequacy of current agricultural policies and programme. Any stagnation or decline in agricultural output deepens rural poverty, which continues to be a marked feature of the rural life of a large part of the country. He asked whether agricultural development programme reach out to the roots of poverty ? Are they based on an adequate diagnosis of the nature of the problem of poverty ? In adding expansion of employment to the alleviation of poverty, what new strategies do we envisage ?

Dr. Har Swarup Singh, Vice-Chancellor, who presided, disclosed that Sir Chhotu Ram Chair (Prof. of Eminence) in Agricultural Economics has been instituted at HAU and memorial lectures are delivered by eminent scientists, educationists, administrators in the broad field of agriculture and rural development on the occasion of birth anniversary of Deen Bandhu Sir Chhotu Ram.

New Oilseeds Varieties

The Indian Council of Agricultural Research (ICAR) has identified a number of new and high yielding varieties of different oilseed crops including sunflower, sesame and niger for the coming Kharif season. The varieties are sunflower, MSFH-17, a high-yielding hybrid for all sunflower growing areas except areas of Maharashtra infested with downy mildew: sesame, is five and RT-48, all high-yielding strains with multiple tolerance to leaf curl, stem rot, bacterial oozing, gall fly, and niger CHH-1, RDR-140 and GA-5, high-yielding and responding well to inputs and good crop management.

PAU Develops Gasifier System

The School of Energy Studies for Agriculture of the Punjab Agricultural University, has developed a 2 to 6 KW capacity gasifier system to operate on rice husk or groundnut shell. The producer gas generated by the system is used as a supplementary fuel in 7 hp diesel engine which can subsequently be connected to a pumping set or electric generator. While engine is operated on a dual fuel mode, about 75 per cent of energy is supplied by producer gas whereas the balance 25 per cent is met by diesel. Consumption of rice husk for a 7 hp engine is 6 kg/hr. This range was selected because most of the farmers own 3 to 8 hp engine for various farm operations.

According to Professor A.P. Bhatnagar, Director of the School of Energy Studies for Agriculture, the application of this technology on large scale will reduce the dependence of the farmers on highly scarce and expensive petroleum fuel and would reduce the country's petroleum products import.

Sugarcane Crop Pests

The Entomologists of the Punjab Agricultural University have observed that under the prevailing hot and dry weather conditions, the attack of black-bug and mite on sugarcane crop is likely to increase in Punjab. Both these insects suck cell sap from the plants. As a result of black-bug attack, the crop looks pale inspite of proper manuring and irrigation while in the case of mite attack, the leaves of the plant turn red.

To save the crop from the attack of black-bug, the experts have suggested to the farmers to spray their crop with 1.5 kg BHC 50 WP or 350 ml Thiodan 35 EC or 225 ml Sumithion/Follithion/Accothion 50 EC or 350 ml of Dursban 20 EC in 150 litres of water. The spray material should be directed into the leaf whorl. In case of mite attack, the farmers are advised to spray their crop with 400 ml malathion 50 EC in 150 litres of water per acre. Since **baru** is an alternative host weed plant, from which the mites spread to the sugarcane crop, this weed should be destroyed.

News from Abroad

Academic Exchange Fellowship Programme

Academic Exchange Fellowship Programme started by the Commonwealth Fund for Technical Cooperation aims at the promotion of academic movement amongst universities in the less developed countries of the Commonwealth to share with each other the fund of experience and expertise which has accrued among them. The programme, operated by the Association of Commonwealth Universities (ACU), may take any one of the following forms :

(a) attachments of university staff, both academic and administrative, to other universities in Commonwealth developing countries to obtain greater experience and training;

(b) short study tours of university staff in Commonwealth developing countries to enhance their ability to contribute to national development

(c) exchanges of staff between universities in developing countries with a specific developmental objective in view;

(d) university-sponsored seminars with a national or regional developmental orientation, where support could be provided for organisation or for teachers or students to attend.

Fellowships will be awarded for not more than three months' duration. Award would normally provide for economy or tourist class travel and a modest daily subsistence allowance but in no circumstances, would exceed a total of £2,000. The proposals by the member universities with necessary details should be addressed to Mr. P.B. Hetherington, Deputy Secretary General (Commonwealth Awards and Appointments), John Foster House, 36 Gordon Square, London WCIH OPF.

Conference on Education and Development

An International Conference on Education and Development will be held in Manila, the Philippines from November 16-19, 1988. Jointly sponsored by the Southeast Asian Ministers of Education Organization Regional Center for Educational Innovation and Technology (SEAMEO/INNOTECH), the Southern Illinois University at Carbondale, and the University of South Carolina, the Conference will bring together leaders and practitioners in the field of educational development, rural education, distance learning and low-cost instructional programming. The Conference will explore potentialities and directions of education as a process in paving the way for material inputs and in supporting material development projects, to extend the benefits of development to much larger segments of target populations.

Details about the Conference can be had from :

INNOTECH Director,
P.O. Box 207,
University of Philippines,
Diliman, Quezon City,
Philippines.

OR

The Dean, School of Technical Careers, Southern Illinois University
Carbondale
Illinois 62901, USA

Research and Training in Italian Laboratories

In pursuance of its aims to facilitate and promote mutual contacts between scientists in developing countries and those in industrialised countries and to further relations between their scientific institutions, the Third World Academy of Sciences (TWAS) awards grants to researchers of proven ability, working and living in developing countries, for the purpose of carrying out research, learning new techniques or undertaking some other form of training by working with colleagues in Italian Research Laboratories. A number of grants will be awarded in 1988 in Biological Sciences, Chemical Sciences and Geological Sciences in which there is recognised Italian experience. Applicants should be nationals of developing countries normally with some research experience and with permanent positions at universities or research institutes in developing countries.

The scheme will cover living expenses in Italy and will amount to a minimum of Italian Lire 1,400,000 per month. Limited funds for travel expenses will be available in case these are not covered by other sources. The grants also cover health insurance for the visitors and their accompanying families. A monthly family allowance for those having dependent family members will be granted. Requests for application form as well as a list of Italian laboratories may be made to :

Prof. M.G.K. Menon,
Vice-President, TWAS,
Yojana Bhawan,
New Delhi-110001.

Requests for participation should reach not later than 31 October, 1988 to the Excutive Secretary. The Third World Academy of Sciences, C/o International Centre for Theoretical Physics (ICTP) P.O. Box 586-34100 Trieste-ITALY

We Congratulate . . .

Dr. Nityananda Pattnaik who has taken over as Vice-Chancellor of the Orissa University of Agriculture and Technology, Bhubaneswar.

ANNAMALAI UNIVERSITY

ANNAMALAINAGAR

No. K2/7/88 **Dated : 20.5.88**

NOTIFICATION

Applications are invited for admission to the following courses for the academic year 1988-89.

1. M.P.E.S.
2. M.P.Ed.
3. M.Phil. in Physical Education.

The applications along with prospectus can be had from the REGISTRAR, ANNAMALAI UNIVERSITY, ANNAMALAINAGAR-608 002 on payment of Rs. 25/- in person or through a demand draft payable on Indian Bank or Bank of Madura at ANNAMALAINAGAR or State Bank of India at CHIDAMBARAM with a self-addressed envelope of size 30 cm. x 13 cm. and stamped to the value of Rs. 1.80 alongwith a requisition specifically stating the course for which the application is required. The application form together with the prospectus will be issued from 25th May 1988.

The last date for the receipt of filled in applications by the University is 30.6.88.

R. Rajamanickam
REGISTRAR

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertations as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Chandel, R.S. *Some problems in fixed point theory.* Devi Ahilya. Dr. Ashok Ganguly, Lecturer, Department of Mathematics, Shri G.S. Institute of Technology and Science, Indore.

2. Jadhav, B.P. *Problems in the non-Newtonian power-law fluids.* Shivaji. Dr. B.B. Waghmode, Reader, Department of Mathematics, Shivaji University, Kolhapur.

3. Sarachandran, T.G. *Semi groups*. Kerala. Dr. S. Madhavan, Prof., Department of Mathematics, University of Kerala, Trivandrum.

Statistics

1. Apte, N.S. *Ranking and selection of populations in binary response models.* Shivaji. Dr. M.S Prasad, Prof. and Head, Department of Statistics, Shivaji University, Kolhapur.

2. Huggi, M.R, *Optimal confidence procedures.* Shivaji. Dr. R.N. Rattihalli, Reader, Department of Statistics, Shivaji University, Kolhapur.

3. Shirke, D.T. *A study of the confidence regions of the parameters.* Shivaji, Dr. R.N. Rattihalli, Reader, Department of Statistics, Shivaji University, Kolhapur.

Physics

1. Dial Chand. *A study of transient waves in thermoelastic and magneto thermo elastic media.* HP. Dr. J.N. Sharma, Department of Physics, Himachal Pradesh University, Shimla and Dr. S.P. Sud, Department of Physics, Himachal Pradesh University, Shimla.

2. Ganesh Kumar, T. *Study on oxide materials.* BHU. Prof. O.N. Srivastava, Department of Physics, Banaras Hindu University, Varanasi and Dr. R.S. Tiwari, Department of Physics, Banaras Hindu University, Varanasi.

3. Jadhav, S.R. *Electrical and magnetic properties of substituted copper-zinc ferrite system.* Shivaji. Dr. S.R. Sawant, Department of Physics, Shivaji University, Kolhapur.

4. Singla, Chhotu Ram. *Study of A.C. conduction in amorphous semi-conductors at microwave frequencies.* Panjab. Prof. K.K. Srivastava, Department of Physics, Panjab University, Chandigarh.

Chemistry

1. Bassi, Kamal Dev. *Designing of protecting reagents useful in peptide chemistry with handles attachable to polymers* HP. Dr. C.S. Pande, Department of Chemistry, Himachal Pradesh University, Shimla.

2. Bhardwaj, Shashi Kant. *Molecular and x-ray structure of some dibutyltin (IV) carboxylates and related derivatives.* Panjab. Prof. S.P. Narula, Department of Chemistry, Panjab University, Chandigarh.

3. Jain, Neena. *Derivatization of cross-linked polymers as reagents in organic synthesis.* HP. Dr. C.S. Pande, Department of Chemistry, Himachal Pradesh University, Shimla.

4. Jain, Vinay Kumar. *Studies towards synthesis of some heterosteroids and related compounds.* Panjab. Prof. S.V. Kessar, Department of Chemistry, Panjab University, Chandigarh and Prof. I.R. Trehan, Department of Chemistry, Panjab University, Chandigarh.

5. Kale, B.B. *Modellirg of gas solid non-catalytic reactions.* Shivaji. Dr. B.D. Kulkarni, National Chemical Laboratory, Pune.

6. Pandhi, Sat Bhusban. *Studies towards the synthesis of β-lactams.* Panjab. Prof. S.D. Sharma. Department of Chemistry, Panjab University, Chandigarh.

7. Rascovt, Prakash Chand. *A study of transport process of some electrolytes in binary solvent mixtures.* HP. Dr. V.K. Syal, Department of Chemistry, Himachal Pradesh University, Shimla.

8. Singh, Jitender Pal. *Synthesis of new β-lactams as potential antibacterial agents.* Panjab. Prof. S.D. Sharma, Department of Chemistry, Panjab University, Chandigarh.

9. Singh, Sdmrit. *Investigations of some dianion reactions of synthetic utility.* Panjab. Prof. S.V. Kessar, Department of Chemistry, Panjab University, Chandigarh and Dr. Y.P. Gupta, Department of Chemistry, Panjab University, Chandigarh.

10. Vohra, Rahul. *Studies towards the synthesis of benzazepine alkaloids.* Panjab. Prof. S.V. Kessar, Department of Chemistry, Panjab University, Chandigarh and Dr. Tejvir Singh, Department of Chemistry, Panjab University, Chandigarh.

Earth Sciences

1. Badoniya, Rajender Kumar. *Ground water investigations in Jatara Block, Tikamgarh District, M.P.* HS Gour. Prof. G.N. Saxena, Reader, Department of Applied Geology, Dr. Hari Singh Gour Vishwavidyalaya, Sagar and Dr. L. P. Chourasia.

2. Bajpai, Rakesh Kumar. *Geological impact on the quality of subsurface water and its effects on the environment, Sagar District, M.P.* HS Gour. Dr. M.V. Durge, Reader, Department of Applied Geology, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

3. Jain, Ajay Kumar. *A study of geology, hydrology, geohydrology, groundwater availability and soil conservation planning for the area Mandawra and Sunrai Regions, District Lalitpur, U.P.* HS Gour. Dr. S.K. Mishra, Reader, Department of Applied Geology, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

4. Jain, Chaudhary Sunil Kumar. *Geological aspects of Rihand lake near Singrauli with special emphasis on the environmental effects.* HS Gour. Dr. S.K. Babu, Prof., Department of Applied Geology, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

5. Jain, Jitender Kumar. *An advanced study for planning and monitoring of groundwater availability, utilisation, pollution and its impact on environment in tail reaches of Matatila command, M.P.* HS Gour. Dr. L.P. Chourasia.

6. Jain, Mahender Kumar. *Environmental studies around Katni and adjacent area, M.P.* HS Gour. Dr. M.V. Durge, Reader, Department of Applied Geology, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

7. Jain, Pawan Kumar. *A study of geology and groundwater hydrology of the area around Gulganj-Angore, Chhatarpur District, M.P.* HS Gour. Dr. S.K. Mishra, Reader, Department of Applied Geology, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

8. Khare, Arun Kumar. *Geology and quality of surface water and its impact on the environment in and around the Sagar District, M.P.* HS Gour. Dr. M.V. Durge, Reader, Department of Applied Geology, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

9. Namdev, Mukesh Kumar. *Environmental studies of the coal mines and its surroundings of Chhindwara District, M.P.* HS Gour. Dr. M.V. Durge, Reader, Department of Applied Geology, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

10. Patel, Dhaniram. *Geological and geochemical inventory of Chauraiya area, Damoh District, Madhya Pradesh.* HS Gour. Dr. P.O. Alexander, Reader, Department of Applied Geology, Dr. Hari Singh Gour Vishwavidyalaya, Sagar and Dr. S.S. Dave.

11. Patil, B.S. *Structural and stratigraphic studies around Bewar, Ajmer District of Rajasthan using remote sensing techniques* Shivaji. Dr. R.R. Patil, Head, Department of Geology, Shivaji University, Kolhapur.

12. Rajeev, S. *A study on ground water resources, evaluation and environmental hazards of the Tawa command area, M.P. using remote sensing techniques.* HS Gour. Dr. L.P. Chourasia and Dr. S.N. Pandey, Reader, Department of Applied Geology, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

13. Raina, Ravinder Pal Singh. *Structural geology and tectonic history of the precambrian rocks and their bearing on the mesozoic-cenozoic vulcanism in the area East of Barwaha City, Western Madhya Pradesh, Central India.* HS Gour. Dr. P.P. Rodey, Reader, Department of Applied Geology, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

14. Singh, Dinesh Kumar. *Geotechnical and hydrogeological studies of Rajghat Dam project.* HS Gour. Dr. L.P. Chourasia and Dr. R.G. Gupta.

15. Surjeet Kumar. *Geology, coal deposits and environmental problems due to coal mining around Churcha, District Sarguja, Madhya Pradesh.* HS Gour. Prof. G.N. Saxena, Reader, Department of Applied Geology, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

16. Tiwari, Naresh Kumar. *Remote sensing study of parts of central Rajasthan and detailed structural and metamorphic study of the rocks of the Bhilwara supergroup around Banare in Bhilwara District.* HS Gour. Prof. T.V.V.G.R.K. Murthy.

Engineering & Technology

1. Baljinder Kaur. *Adsorption of organion organics from aqueous phase by active carbons.* Panjab. Prof. R.C. Bansal, Department of Chemical Engineering and Technology, Panjab University, Chandigarh.

2. Dutta, Debjani. *Studies on very high speed devices.* BHU. Prof. B.B. Paul, Department of Electronics Engineering, Banaras Hindu University, Varanasi.

3. Sharma, Naresh. *Preparation and characterisation of carbon molecular sieves.* Panjab. R.C. Bansal, Department of Chemical Engineering and Technology, Panjab University, Chandigarh.

4. Tiwari, Shailash Kumar. *Speech synthesis.* BHU. Prof. Raghunath, Department of Electronics Engineering, Banaras Hindu University, Varanasi.

5. Tiwari, Tapeshwar. *Electron gun.* BHU. Prof. R.K. Jha, Department of Electronics Engineering, Banaras Hindu University, Varanasi.

BIOLOGICAL SCIENCES

Anthropology

1. Sonia. *ABH secretion in health and disease.* Panjab. Prof. V. Bhalla, Department of Anthropology, Panjab University, Chandigarh.

Marine Biology

1. George, C.K. *Studies on the parasites and diseases of marine fishes.* Kerala. Dr. S. Radhakrishnan, Lecturer, Department of Aquatic Biology and Fisheries, University of Kerala. Trivandrum.

2. Xavier, Barnabhas. *Studies on the functional morphology and ecology on the genus Chela ftom S.W. Coast of India.* Kerala. Dr. P. Natarajan, Prof. and Head, Department of Aquatic Biology and Fisheries, University of Kerala, Trivandrum.

Biophysics

1. Sharma, Rakesh Kumar. *Interference of certain chemical agents with epididymal physiology : A possible approach to male contraception.* Panjab. Dr. N.R. Kalla, Department of Biophysics, Panjab University, Chandigarh.

Biochemistry

1. Gupta, Reena. *Studies on epithelial cell surface glycosylation in mice intestine : Effect of different nutritional regimens.* Panjab. Dr. Akhtar Mahmood, Department of Biochemistry, Panjab University, Chandigarh.

2. Mohini. *Studies in environmental toxicology : Some aspects of the propane-1, 2-diol induced biochemical changes in rat erythrocytes.* Panjab. Dr. M.K.P. Amma, Department of Biochemistry, Panjab University, Chandigarh and Dr. J.P. Nagpaul, Department of Biochemistry, Panjab University, Chandigarh.

3. Sharma, Sangeeta. *Biochemistry of nuclei and metabolism in plant seedlings.* BHU. Dr. (Mrs). V. Taneja, Department of Biochemistry, Banaras Hindu University, Varanasi.

Botany

1. Amarjit Kaur. *Organic acids and fat metabolites of some Cladosporium spp.* Panjab. Prof. G.S. Rawla, Department of Botany, Panjab University, Chandigarh.

2. Ashok Kumar. *Studies on the anti-phytosocial properties of eucalyptus.* Panjab. Dr. R.K. Kohli, Department of Botany, Panjab University, Chandigarh.

3. Fernadis, S.F. *Studies on nitrogen and phosphorus in estuarine ecosystem of Western Maharashtra.* Shivaji. Smt. L.J. Bhosale, Department of Botany, Shivaji University, Kolhapur.

4. Kulkarni, P.K. *Some ecological and physiological aspects of Rhizophora propagules.* Shivaji. Dr. (Smt.) L.J. Bhosale, Department of Botany, Shivaji University, Kolhapur.

5. Malvinder Kaur. *Physiological and biochemical aspects of eradication of Lantana.* Panjab. Dr. R.K. Kohli, Department of Botany, Panjab University, Chandigarh and Dr. K.K. Dhir, Department of Botany, Panjab University, Chandigarh.

6. Ramanjit. *Biotechnology of organic acids and fats from some plectomycetes.* Panjab. Prof. G.S. Rawla, Department of Botany, Panjab University, Chandigarh.

7. Ranjit Kaur. *Taxonomy of some North Indian Agarics.* Panjab. Prof. G.S. Rawla, Department of Botany, Panjab University, Chandigarh.

8. Said, Shirzadian. *Systematic study of some Iranian mosses.* Panjab. Dr. S.S. Kumar, Department of Botany, Panjab University, Chandigarh.

Zoology

1. Augustine, S. *Studies on macrozoobenthic population and their utility as pollution indicators with special reference to industrial effluents at Dewas.* Devi Ahilya. Dr. A.P. Diwan, Prof., Department of Zoology, Govt. P.G. College, Mhow.

2. Bhanot, R.K. *Studies on some aspects of the biology of white grubs.* Shivaji. Dr. G.P. Bhawane, Lecturer, Department of Zoology, Shivaji University, Kolhapur.

3. Chona, Mukesh Kumar. *Biomonitoring and ecological succession of industrial effluents of Chandigarh.* Panjab. Prof. H.S. Vasisht, Department of Zoology, Panjab University, Chandigarh.

4. Dalip Kumar. *Taxonomic studies on some Indian zygopinae with special reference to the external genitalia (Curculionidae : Coleoptera).* Panjab. Prof. H.R. Pajni, Department of Zoology, Panjab University, Chandigarh.

5. Oulkar, J.M. *Impact of biotic and abiotic factors on the population dynamics of some hairy caterpillars on economic important crops.* Shivaji. Dr. T.V. Sathe, Department of Zoology, Shivaji University, Kolhapur.

6. Patil, P.N. *Studies on the phytotoxins in the control of molluscan pests.* Shivaji. Dr. S.G. Nanaware, Department of Zoology, Shivaji University, Kolhapur.

Agriculture

1. Nayar, Punam. *Agroforestry ecosystem dynamics in Himachal Himalaya.* Panjab. Prof. P.K. Khosla, Department of Forestry, Himachal Pradesh Krishi Vishwavidyalaya, Solan and Dr. S S. Kumar, Department of Botany, Panjab University, Chandigarh.

Medical Sciences

1. Chandrasekharan Nair, M.K. *A study of developmental outcome and effect of early interventional therapy on babies with various perinatal insults.* Kerala. Dr. Elsie Philip, SAT Hospital, Medical College, Trivandrum.

2. Gopal Das. *Biology of human variation : A biostatistical approach.* BHU. Prof. G.P. Dubey, Department of Basic Principles, Banaras Hindu University, Varanasi.

3. Jyothindra Kumar, K. *Tissue response to orthodontic treatment..* Kerala. Dr. George Jacob, Prof. and Head, Department of Orthodontics, Dental College, Trivandrum.

4. Tripathi, Virendra Kumar. *Chemical investigation of medicinal plants with special reference to Terminalia arjuna and evaluation of biological activity.* BHU. Dr. V.B. Pandey, Department of Medicinal Chemistry, Banaras Hindu University, Varanasi and Dr. K.N. Udupa, Department of Medicinal Chemistry, Banaras Hindu University, Varanasi.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Chakraborti, Subinay. *On some problems of atomic scattering of charged particles.* Calcutta.

2. Gupta, Babu Lal. *Operations management production planning and control : Application of operation research techniques.* Rajasthan. Dr. B.S. Gupta, Department of Accountancy and Business Statistics, University of Rajasthan, Jaipur and Dr. R.S. Khandelwal, Department of Mathematics, University of Rajasthan, Jaipur.

3. Ramachandra Murthy, V. *Marangoni and Rayleigh-Benard convection.* Bangalore. Dr. N, Rudraiah, Prof. and Head, Department of Mathematics, Central College, Bangalore.

4. Sucheta. *Dimension subgroups and Schur multiplicator.* Panjab.

Statistics

1. Gurumurthy. *Sampling strategies and mixture distributions in crop loss estimation.* Bangalore. Dr. Sundararaj, Department of Statistics, Bangalore University, Bangalore; Dr. T. Srivenkataramana, Department of Statistics, Bangalore University, Bangalore and Dr. M. Nagaraj, Department of Statistics, Bangalore University, Bangalore.

2. Rout, Udaya Nath. *Some properties of a generalized discrete distribution.* Utkal.

Physics

1. Abdul Baten Ahmed. *A study of thermally stimulated luminescence in some feldspars.* Manipur. Dr. R.K. Gartia, Assoc. Prof., Department of Physics, Manipur University, Imphal.

2. Al-eweisi, Mohammad Adel Hamdan. *Studies in atmospheric electrical behaviour with special reference to the kinetics of ionospheric irregularities.* Nagpur. Dr. G.N. Navneeth, Director, Electronics and Spacephysics Laboratory, Department of Physics, Nagpur University, Nagpur.

3. Arivu Oli, D. *Growth of trihalides, chalcogenides chalcohalides of arsenic, antimony and bismuth from vapour and some studies of microhardness behaviour and etching.* Anna.

4. Aroumougame, R. *Fragmentation theory for synthesizing new and heavy elements through heavy ion collisions.* Panjab.

5. Badiger, Nagappa Mahadevappa. *Study af internal Bremsstrahlung in the optical region and in kev region.* Karnatak. Prof. N. Umakantha, Department of Physics, Karnatak University, Dharwad.

6. Bhattacharyya, Pranab Kumar. *The study of tension variation of jute yarns and its effects on the preparatory and weaving operations and fabric properties.* Calcutta.

7. Chaudhuri, Siddhartha. *Crystal and molecular structures of some compounds of biological interest.* Calcutta.

8. Gupta, Anil. *Compton scattering studies of some materials.* Rajasthan. Dr. B.K Sharma, Department of Physics, University of Rajasthan, Jaipur.

9. Koparkar, Pramila Vinayak. *Studies in ionospheric physics with special reference to ionospheric irregularities and VHF scintillations.* Nagpur. Prof. G.N. Navneeth, Department of Physics, Nagur University, Nagpur and Prof. R.G. Rastogi, Indian Inststute of Geomagnetism, Bombay.

10. Mohammad Aslam. *A study on locally convex spaces and dual nuclear locally convex spaces.* Magadh.

11. Nath, Malabika. *Some aspects of high energy cosmic ray air shower and multiparticle production phenomena.* Calcutta.

12. Rajegowda, M.B. *Investigations on the growth of external Bremsstrahlung produced by beta particles in thin foils.* Karnatak. Dr. T.S. Mudhole, Reader, Department of Physics, Karnatak University, Dharwad.

13. Singh, Ram Pal. *Rb-Sr dating and Sr isotopic studies of some granites and gneisses of Kumaun and Garhwal Himalaya, U.P. India.* Panjab.

14. Verma, Renu. *Present state of dielectric measurements for amorphous semiconductors.* Panjab.

15. Udaya Shankar, N. *Application of digital techniques to radio astronomy measnrements.* Bangalore. Prof P. Paramashivaiah, Department of Physics, Central College, Bangalore and Dr. S. Krishnan, Raman Institute of Science, Bangalore.

Chemistry

1. Arora, Seema. *Bioactive fluorine containing indoles with C-3 as spiro atom.* Rajasthan. Prof. K.C. Joshi, Department of Chemistry, University of Rajasthan, Jaipur.

2. Ayyaswami, N. *Electro synthesis : Electroreduction of certain aximes.* Madurai.

3. Chandraiah, U. *Kinetics and mechanism af oxidation of some compounds by tetravalent nickel.* Osmania.

4. Dave, Anjani M. *Studies on medicinally important compounds.* Bhavnagar. Dr. P.B. Trivedi, Reader, Department of Chemistry, Bhavnagar University, Bhavnagar.

5. Deshpande, Subhash Bhagwan. *Studies on structural, dielectric and piezoelectric properties of some modified ceramics of Pb* (*Zr-Ti*) O_3. Shivaji. Dr. P. Roy Chowdhury, Scientist E, Physics Chemistry Division, National Chemical Laboratory, Pune.

6. Dhabre, Ramrao Punjaji. *Inductive and mechanistic studies of oxidation of organic acids in redox reactions viz-Fe (II)-Cr (VI), Fe (II)-Mn (VII) and AS (III)-Mn (VII) reactions.* Nagpur. Dr. B. Madhava Rao, Visveswaraya Regional College of Engineering, Nagpur.

7. Dube, Bhim Raj. *Physico-chemical studies of the bivalent metal complexes of some substituted monothio-β-diketones.* Rajasthan. Dr. A.K. Rai, Department of Chemistry, University of Rajasthan, Jaipur.

8. Dube, H.N. *Kinetics and mechanism of the oxidation of some diols by N-bromobenzamide.* Vikram. Dr. V.R. Shastri, Prof. Department of Chemistry, Vikram University, Ujjain.

9. Gokavi, Gavisiddappa Shankarappa. *Kinetics and mechanism of some oxidation reactions.* Karnatak. Dr. J.R. Raju, Reader, Department of Studies in Chemistry, Karnatak University, Dharwad.

10. Gupta, Ragini. *Fluorine containing bioactive heterocycles.* Rajasthan. Dr. K.C. Joshi, Department of Chemistry, University of Rajasthan, Jaipur and Dr. V.N. Pathak, Department of Chemistry, University of Rajasthan, Jaipur.

11. Joseph, Lucy. *Studies on chelating ion exchange resins.* CUST. Dr. V.N. Sivasankara Pillai, Reader, Department of Applied Chemistry, Cochin University of Science and Technology, Cochin.

12, Kalluraya, Balakrishna. *Synthesis, characterization and biological activities of some nitrofuran and oxadiazole derivatives.* Mangalore. Dr. B. Shivarama Holla, Reader, Department of Chemistry, Mangalore University, Mangalogangotri.

13. Katre, Y.R. *A kinetic study of oxidation of some amino acids by chloramine T in micellar system.* Vikram. Dr. S.K. Solanki.

14. Laloo, Didcy. *Kinetics af oxidation of some organic substrates.* NEHU. Dr. M.K. Mahanti, Reader, Department of Chemistry, North Eastern Hill University, Shillong.

15. Mohapatra, Biswamohan. *Chemical annealing of damage fragments in gamma irradiated pure and doped potassium nitrate.* Utkal.

16. Mukhtiar Singh. *Chemical investigation of some Indian and Malaysian medicinal plants.* Rajasthan. Dr. Lalit Prakash, Department of Chemistry, University of Rajasthan, Jaipur.

17. Murtada, Yahya S. *Studies in fluorine containing benzoyal-14-benzoquinones and related compounds.* Rajasthan. Dr. K.C. Joshi, Prof. Department of Chemistry, University of Rajasthan, Jaipur.

18. Nagar, Padam Nabh. *Dialkylphosphonate and dialkyl thiophosphonate derivatives of tin (IV) and arsenic (III).* Rajasthan. Dr. R.C. Mehrotra, Department of Chemistry, University of Rajasthan, Jaipur and Dr. G. Srivastava, Department of Chemistry, University of Rajasthan, Jaipur.

19. Nalini, Veerapaneni. *Crystal engineering and topochemistry of some thiazole-2(1H)-thinones : Designing the packing of planar aromatic heterocycles using non-bonded contacts to sulphur.* Hyderabad. Dr. Goutam R. Desiraju.

20. Pachhamia, V.L. *Studies on heterocyclic compounds.* Saurashtra. Dr. A.R. Parikh, Department of Chemistry, Saurashtra University, Rajkot.

21. Pandurang, Nikam Bhagawan. *Studies in synthesis in some oxazines and flavones.* Shivaji. Dr. M.B. Hogale, Department of Chemistry, Shivaji University, Kolhapur.

22. Rajinder Kumar. *Studies on substituted biologically active nitrogen compounds.* Jammu. Dr. C.S. Andotra.

23. Sarala, G. *Kinetic and mechanistic aspects of oxidation by trivalent silver.* Osmania.

24. Sharma, Kanti. *Synthesis of some novel fluorine containing heterocycles.* Rajasthan. Prof. K.C. Joshi, Department of Chemistry, University of Rajasthan, Jaipur.

25. Sharma, Saroj. *Photometric determination of transition metal ions with sulphur containing ligands.* Rajasthan. Dr. S.P. Mathur, Department of Chemistry, Govt. College, Beawar, Rajasthan.

26. Shetti, Shreedhar Nemanna. *Study of metal complexes using thio compounds as ligands.* Karnatak. Dr. A.S.R. Murthy, Department of Studies in Chemistry, Karnatak University, Dharwad.

27. Srinivasan, T.N. *Synthesis of nitrogen heterocycles of biological importance : Reactions with chlorosulfonyl isocyanate.* Karnatak. Dr. P.B. Sattur, Deputy Director and Head, Organic Chemistry (Drugs), Regional Research Laboratory, Hyderabad.

28. Surama Devi. *Synthesis and testing of new herbicides.* Utkal.

29. Syed Mushtak Ali. *Stereo-chemistry and thermal behaviour of some metal hydroxamates.* Devi Ahilya. Dr. P.V. Khadikar, Department of Chemistry, Devi Ahilya Vishwavidyalaya, Indore.

30. Varma R., Hari Kumar. *Studies on some silver (I) complexes.* Kerala. Dr. C.P. Prabhakaran, Prof., Department of Chemistry, University of Kerala, Trivandrum.

31. Venugopal, D. *Studies in generation of orthoquino dimethanes and application in synthesis.* Panjab.

32. Vijayalakshmi Rao, R. *Kinetics and mechanisms of some redox reactions in solution.* Mangalore. Dr. B. Thimme Gowda, Reader, Department of Chemistry, Mangalore University, Mangalagangotri.

Earth Sciences

1. Chandra Sekaran, V. *Geochemistry of the basic, acid and alkaline intrusives and oxtrusives of Sarnu-Dandali Area, Barmer District, Rajasthan.* Rajasthan. Dr. R.K. Srivastava, Department of Geology, University of Rajasthan, Jaipur.

2. Guptha, M.V.S. *Calcareous nannoplankton from the quaternary sediments of the Western Indian Ocean.* Andhra.

3. Khan, A.A. *Geomorphic evaluation at quarternary sedimentation in upper Ganga Basin, Garhwal Himalaya, U.P.* Vikram. Dr. A.C Chatterjee, Reader, Department of Geology, Vikram University, Ujjain.

4. Paul, Kokkelagadda John. *Studies on low-level laterites in and around Visakhapatnam, India.* Andhra.

Engineering & Technology

1. Bhattacharyulu, Yadavalli Chandrasekhara. *Rate phenomena in high temperature interphase reactions in a flow system.* Nagpur. Dr. G.D. Nageshwar, Director, Laxmi Narain Institute of Technology, Nagpur.

2. Joseph, Rani. *Curing studies of elastomer blends with special reference to NR/SBR and NR/BR blends.* CUST. Dr. D. Joseph Francis, Head, Department of Polymer Science and Rubber Technology, Cochin University of Science and Technology, Cochin.

3. Mhaisalkar, Vasant Anant. *Role of rapid mix in the process of flocculation.* Nagpur. Shri B.B. Sundaresan, Vice-Chancellor, University of Madras, Madras and Shri A.G. Bhole, Visveswaraya Regional College of Engineering, Nagpur.

4. Nanda, Raj Kumar. *Resonant response of beams and rectangular plates with discrete viscoelastic dampers and absorbers.* IIT, Delhi. Prof. B.C. Nakra, Department of Mechanical Engineering, Indian Institute of Technology, New Delhi.

5. Rama Gopal, Sarepaka Vizia. *Design aspects of some basic photographic objective configurations : A study.* IIT Delhi. Dr. B.N. Gupta, Instrument Design Development Centre, Indian Institute of Technology, New Delhi.

6. Thukral, Kapil. *An analysis of India's oil policy alternatives.* IIT Delhi. Prof. P.S. Satsangi, Department of Electrical Engineering, Indian Institute of Technology, New Delhi.

7. Verma, Mukul Ranjan. *Fail safe signal processing techniques using microprocessors and application to design and development of route interlocking system for railways.* IIT, Delhi. Dr. Vinod Chandra, Department of Electrical Engineering, Indian Institute of Technology, New Delhi.

ANNAMALAI UNIVERSITY

DIRECTORATE OF DISTANCE EDUCATION

ADMISSION NOTIFICATION FOR THE YEAR 1988-89

The Directorate offers the following courses of study. Admission is open to persons all over India.

I. Professional Courses

1. B.Ed. (English and Tamil Media)
Duration : One year
Eligibility : (i) Any graduate employed teacher working in schools recognised by the Department of School Education; and
(ii) Any Post-graduate

2. M.Ed. (English and Tamil Media)
Duration : One year
Eligibility : B.Ed./M.H.Ed. or an equivalent degree.

II. Under-Graduate Courses

Duration : Three years

3. B.A. History (English and Tamil Media)
4. B.A. Sociology (English and Tamil Media)
5. B.A. Psychology (English Medium)
6. B.A. Economics (English Medium)
7. B.A. English
8. B.Lit. (Tamil)
9. B.Com. (English and Tamil Media)

Eligibility : A pass in Pre-University/Higher Secondary Examination/Second Year Foundation Course or an equivalent examination.

10. B.Sc. Mathematics (English Medium)
Eligibility : A pass in Pre-University/Higher Secondary Examination/Second Year Foundation Course or an equivalent examination with Mathematics as one of the subjects.

III. Post-Graduate Courses

Duration : Two years

11. M.A. Tamil
Eligibility : B.A./B.Sc. with Tamil under Part I or III or B.Lit.

12. M.A. English
Eligibility : B.A./B.Sc. with English under Part II or III

13. M.A. History (English and Tamil Media)
Eligibility : B.A./B.Sc.

14. M.A. Economics (English Medium)
Eligibility : B.A. Economics or B.Sc. Statistics/B.Sc. Mathematics with 50% of marks in Part III of the B.Sc. Degree.

15. M.A. Psychology (English Medium)
Eligibility : B.A. or B.Sc with 40% of marks in Part III

16. M.A. Sociology (English Medium)
Eligibility : B.A./B.Sc.

17. M.Sc. Mathematics (English Medium)
Eligibility : B Sc. Mathematics/B.Sc. Statistics

18. M.Sc. Physics (English Medium)
Eligibility : B.Sc. Physics

19. M.Sc. Chemistry (English Medium)
Eligibility : B.Sc. Chemistry

20. M.Sc. Zoology (English Medium)
Eligibility : B.Sc. Zoology

21. M.Sc. Botany (English Medium)**
Eligibility : B.Sc. Botany

22. M.Com (English and Tamil Media)
Eligibility : B.Com./B.B.A /B.A. Corporate Secretaryship/B.A. Co-operation.

IV (a) Law Degree Courses

23. B.A.L. (Bachelor of Academic Laws) (English Medium)
Duration : Three years.
Eligibility : Any Degree.

24. B.G.L. (English Medium)**
Duration : Two years.
Eligibility : Any Degree.

(b) Diplomas in Law : (English Medium)
Duration : One year

25. (a) Diploma in Company Law with Banking Law and Practice
(b) Diploma in Labour Laws with Administrative Law
(c) Diploma in Law of Taxation
(d) Diploma in Management Laws
(e) Diploma in Criminology and Administration of Criminal Justice
(f) Diploma in Insurance Laws

Eligibility : Any Degree

V. Management Courses

26. Diploma Courses in Management (English Medium)
Duration : One year
(a) Diploma in Production Management
Eligibility : A degree in B.E./M.Com./M.B.A./M.A. Economics, M.Sc. Mathematics/M.Sc. Statistics/Diploma Holders in Engineering

(b) Post-Graduate Diploma in Materials Management

(c) Post-Graduate Diploma in Business Administration

(d) Post-Graduate Diploma in Personnel Management

(e) Post-Graduate Diploma in Marketing Management

(f) Post-Graduate Diploma in Financial Management

Eligibility : Any Degree

VI. Foundation Courses : (English and Tamil Media)

27. **First Year** : Eligibility : Pass in 10 year SSLC (New Pattern) or an equivalent examination/failed in 11 year SSLC.

28. **Sebond Year** : Eligibility : Pass in 11 year SSLC or an equivalent examination.

VII. Job Oriented Courses

Duration : One year

29. (a) Diploma in Concrete Technology and Design of Concrete Structures (English Medium)

Eligibility : Diploma in Civil Engineering/B.E. Civil Engineering, B.E. Civil and Structural Engineering

(b) Diploma in Chemical Process, Instrumentation and Control (English Medium)

Eligibility : B.Sc. Graduates with Physics/Chemistry/Mathematics main and ancillary subjects OR Diploma holders in Chemical, Mechanical, Electrical or Electronics Engineering.

(c) Diploma in Maintenance Management (English Medium,

Eligibility : (i) B.E. (Mechanical), B.E. (Production), B.E. (Electrical), B.E. (Chemical).

(ii) A.M.I.E. (Mechanical/Electrical/Chemical)

(d) Certificate Course in Automobile Technology (English and Tamil Media)

Eligibility : A Pass in SSLC (X Standard) or equivalent examinations.

**To be introduced this year.

Caution

Some Private Institutes/Individuals posing as our Agents are allegedly collecting fees, issuing Application Forms and promising admission to our courses. The Directorate has no such Agents and takes no responsibility for their actions. Candidates are therefore advised to correspond cirectly with the **Directorate only**.

The candidates are advised to apply direct to the Directorate individually for Application Forms as well as for admission. Applications for admission received through tutorials or any other agency will be summarily rejected.

The cost of application form and prospectus for each course is Rs. 25/-. Applications will be sent to all by registered post.

Application form and prospectus can be had from the Director, Directorate of Distance Education, Annamalai University, Annamalainagar-608002 by sending a requisition alongwith a crossed Demand Draft for Rs. 25/- drawn in favour of the **Registrar, Annamalai University**, on any bank at Annamalainagar Chidambaram, mentioning clearly the name of the course for which the application form is required and a self-addressed unstamped cover of size 25 cm. x 15 cm. Cheques, Postal Orders, Money Orders and Outstation Demand Drafts are not accepted. Demand Draft should be purchased on or after 1.6.1988.

The last date for receipt of filled in application is **31st August, 1988**.

Study Centres have been opened at the following places for the benefit of the students.

1. 19, Marshals Road, Egmore, Madras-600 008
2. 7, Gnanam Colony, 1 Main Road, Ramalinga Nagar, Woriyur, Tiruchi-620 003
3. 15, Dr. Subbarayan Street, Salem-636 001
4. 70, Ammasi Madam Street (Near T.T.C. Bus Stand) Meenakshipuram, Nagercoil-629 001
5. 4, Thiagarajapuram, Vellore-632 001
6. 276, Annanagar (Near Gupta's Auditorium) Madurai-625 020
7. 47, Basant Enclave, New Delhi-110 057 (Phone No. 607407)
8. DDE Building, Annamalai University, Annamalainagar. (Phone No. 2610-Chidambaram)

Liaison Officers at the different Study Centres may be contacted for any further clarification regarding admissions. Applications can be had from the Study Centres also on payment of Rs. 25/- by Demand Draft drawn in favour of '**The Registrar, Annamalai University**' as instructed above. Study Centres will remain closed on all Tuesdays, Second Mondays and all other public holidays.

Those who want to get application by post should apply to the Directorate only and not to the Study Centres.

Filled in applications should however be sent only to the Director, Directorate of Distance Education, Annamalai University, Annamalainagar, South Arcot District, Tamil Nadu, Pin Code : 608 002. **In no case filled in applications should be sent to the Study Centres.**

Application and Prospectus can be had from the Directorate of Distance Education, Annamalai University, Annamalainagar and Study Centres from 1.6.1988.

Admission cannot be claimed as a matter of right and the Directorate reserves to itself the right of admission.

K. Ansari Baig
DIRECTOR

MINISTRY OF DEFENCE

DEFENCE RESEARCH & DEVELOPMENT ORGANISATION

M.Sc. Computer Science (Software) Programme—Sponsored by DRDO

Scheme

The Defence Research and development Organisa-(DRDO) has sponsored the M.Sc. (Computer Science-Software) Programme in seven Universities in the country. The aim of the Scheme is to train young talented Science Graduates in the area of Computer Software and to attract them to join DRDO as Scientists. The duration of the Course is two years during which a Fellowship of Rs. 800/- per month is awarded by DRDO to all the selected candidates. On successful completion of the Programme, the candidates are likely to be absorbed as Scientist 'B' (Group 'A' Gazetted).

Career Prospects

The DRDO offers excellent career prospects to young Scientists. The Defence Research and Development Service comprises the following grades :

Scientist 'B'	—	Rs. 2200-4000
Scientist 'C'	—	Rs. 3000-4500
Scientist 'D'	—	Rs. 3700-5000
Scientist 'E'	--	Rs. 4500-5700
Scientist 'F'	—	Rs. 5100-6300
Scientist 'G'	—	Rs. 5900-7300

Under the 'flexible complementing' scheme in operation in DRDO promotions are based on merit rather than the availability of vacancies.

Universities

The Programme is being conducted in the Universities of Allahabad, Andhra, Cochin, Indore, Madurai, Mysore and Pune.

Eligibility

Candidates possessing a first class Degree in Mathematics, Physics, Computer Science or Electronics from an Indian University or equivalent are eligible for admission.

Age

Not more than twenty three years as on 1st August of the year of admission; this is relaxable by five years in the case of SC and ST candidates.

Admission Procedure

Admissions to the Programme will be made by the respective University directly for which the Universities would issue advertisements in leading newspapers in May-June for the ensuing session. The candidates desirous of joining the Programme should be on the look-out for the advertisements for applying for admission. They can also obtain more information from the office of the Registrar or the Computer Science Departments of the concerned Universities.

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COLLEGE OF PHARMACEUTICAL SCIENCES

MANIPAL

(A Unit of Dr. T.M.A. Pai Foundation)

Applications are invited for admission to B. Pharm. Course commencing in August 1988. Intending candidates should have secured not less than 50% marks in Physics, Chemistry and Biology/Mathematics at the 10+2 level.

Established in 1965, the College attached to the Kasturba Medical College, Manipal, has developed into a centre of specialised learning in pharmaceutical sciences. The College offers courses for graduation and postgraduation studies apart from providing facilities for doctoral research. The College has good residential and recreational facilities also.

For full details and application forms, please apply with a self-addressed envelope (size 10'' x 6'') affixing Rs. 2.60 postage stamps and a postal order for Rs. 30/- to : The Director of Admissions, Dr. T.M.A. Pai Foundation, Post Box No. 2, Manipal 576 119, Karnataka. Last date for receipt of applications : **30th June 1988.**

The Gandhigram Rural Institute

(DEEMED UNIVERSITY)

Gandhigram-624 302 (Anna Dt.) Tamilnadu

Situated in natural rural surroundings 56 Kms north of Madurai in a 260 acre campus Candhigram Rural Institute is engaged in imparting rural oriented higher educated higher education for more than 30 years. It attracts students from all parts of India and some from abroad and the medium of instruction is English. For the 1988-89 session Gandhigram Rural Institute offers the following courses :

I. M.Phil (One Year)	(i) Micro-level Planning (ii) Gandhian Thought and Peace Science
II. M.A. (Two Years)	(i) Rural Development (ii) Rural Economics and Extension Education (iii) Rural Sociology and Panchayat Raj (iv) Co-operative Management (v) Communicative English (vi) Tamil and Indian Literature.
III. B.A. (Three Years)	(i) Development Administration (ii) Rural Industries and Management (iii) Co-operation.
IV. M.Sc. (Two Years)	(i) Applied Chemistry for Rural Development (ii) Home Science, Extension for Rural Development (only for women) (iii) Applied Physics.
V. B.Sc. (Three Years)	(i) Mathematics with Physics and Chemistry (ii) Physics with Chemistry and Mathematics (iii) Chemistry with Physics and Mathematics (or) with Physics and Biology (iv) Home Science (only for women)
VI. Diploma Courses	(i) Agriculture—2 years after PLUS 2 (Tamil Medium) (ii) Bio Gas Technology and Renewable Energy (1 year) after B.Sc. (iii) Khadi and Handloom Technology—Two years after PLUS 2.
V. Certificate Course	Sanitary Inspector—One year after PLUS 2 (for men only)

Application forms with the prospects can be had from the Registrar at the address above by sending: (a) Crossed Indian Postal Order (not dated before 25th May) drawn in favour of the Registrar for Rs. 15/- for M.Phil., M.A., and M.Sc., courses and Rs. 10/- for B.A., B.Sc., Diplom and Certificate Courses payable to the Registrar, Gandhigram Rural Institute, Gandhigram at Gandhigram Post Office. (b) a self-addressed envelope of size 20.5. cm and 11 cm with Rs. 2/- stamp affixed indicating on the envelope the course for which admission is south.

The Last Date for the receipt of completed application in this Office is 30th **June, 1988**.

Dr. P.V. Subramanian
REGISTRAR

ANNAMALAI UNIVERSITY

Annamalainagar

No. K2/4/88

Dated : 20-5-88

NOTIFICATION

M.B.A. PROGRAMME-1988-89

Applications are invited for admission to Two Year full time M.B.A. (Semester) programme for the year 1988-89. Application form and prospectus can be had from the REGISTRAR, ANNAMALAI UNIVERSITY, ANNAMALAINAGAR-608 002 on written requisition enclosing (i) a demand draft to the value of Rs. 100/- (Rupees one hundred only) drawn in favour of the REGISTRAR, ANNAMALAI UNIVERSITY payable on Indian Bank or Bank of Madura at ANNAMALAINAGAR, or State Bank of India at CHIDAMBARAM and (ii) a self addressed envelope of size 30 cm. x 13 cm. stamped to the value of Rs. 1.80. The application form together with the prospectus will be issued from 25th May 1988.

Eligibility

A graduate of a recognised University, having secured 55% in the B.A., B.Com., B.B.A. or 60% in the B Sc., B.E., B.Sc. (Agri.), B.Pharm or an equivalent degree.

Last Date for the receipt of filled in applications by the University is **30.6.88.**

The University will not be responsible for any postal delay.

R. Rajamanickam
REGISTRAR

ANNAMALAI UNIVERSITY

ANNAMALAINAGAR

No. K2/5/88

Dated : 20-5-88

NOTIFICATION

Admission to M.B.A. Course (Part-time) 1988-89

Applications are invited for admission to the M.B.A. course (Part-time) for the year 1988-89. Application form and prospectus can be had from the REGISTRAR, ANNAMALAI UNIVERSITY, ANNAMALAINAGAR-608002 on written requisition by enclosing (i) a demand draft for Rs. 100/- (Rupess one hundred only) drawn in favour of the REGISTRAR, ANNAMALAI UNIVERSITY payable on Indian Bank or Bank of Madura at ANNAMALAINAGAR or State Bank of India at CHIDAMBARAM and (ii) a self-addressed envelope of size 30 cm. x 13 cm. affixing postage stamps to the value of Rs. 1.80. The application form together with the prospectus will be issued from 25th May 1988.

Qualification for Admission

1. A degree in any discipline with II class from a recognised University and with two years experience in managerial cadre in a manufacturing, marketing, banking organisations, Government Departments, or Government Undertakings.
2. The candidates sponsored by the organisations will be preferred.

The last date for receipt of filled in application forms by the University is **30.6.88**.

The University will not be responsible for any postal delay.

R. Rajamanickam
REGISTRAR

ANNAMALAI UNIVERSITY

ANNAMALAINAGAR

No.K2/3/88

Dated : 20-5-88

NOTIFICATION

Applications are invited for admission to the following courses for the academic year 1988-89.

		Cost of Application Form and Prospectus
1.	B.E./B.E. (Chem.) Degree	Rs. 35/-
2.	B.E./B.E. (Chem.) Degree (Part-time) Branches : 1. Mechanical and Production; 2. Chemical.	Rs. 35/-
3.	M.E./M.E. (Chem.) Degree (Regular and Part-time)	Rs. 35/-

Branches

1. Structural Engineering (Regular only) 2. Soil Mechanics and Foundation Engineering (Regular only), 3. Water Resources Engineering and Management (Part-time only), 4. Environmental Engineering (Part-time only), 5. Thermal Power Engineering (Regular only) 6. Production Engineering (Regular and Part-time) 7. Power System Engineering (Regular and Part-time), 8. Digital Electronics, Control and Instrumentation Engineering (Part-time) and 9. Chemical Engineering.

4.	M.C.A. Degree (Master of Computer Applications)	Rs. 50/-
5.	Post B.Sc. Diploma in Computer Science and Applications	Rs. 35/-
6.	B.Sc. (Agri.) Degree	Rs. 35/-
7.	M.Sc. (Agri.) Degree	Rs. 35/-

Branches

1. Agronomy, 2. Agricultural Entomology, 3. Microbiology,
4. Plant Pethology, 5. Soil Science and Agricultural Chemistry; and
6. Agricultural Economics.

8.	B. Pharm. Degree	Rs. 60/-
9.	D. Pharm.	Rs. 40/-

For application form and prospectus, the REGISTRAR, ANNAMALAI UNIVERSITY, ANNAMALAINAGAR-608 002 may be addressed by enclosing (i) a Demand Draft to the value indicated against each course drawn in favour of the REGISTRAR, ANNAMALAI UNIVERSITY payable on Indian Bank or Bank of Madura at ANNAMALAINAGAR or State Bank of India at CHIDAMBARAM; and (ii) a self-addressed envelope of size 30 cm. x 13 cm. stamped to the value of Rs. 1.80 (for (B.E./B.Sc. (Ag.) (Rs. 5.00) with the name of the course for which the application form is required superscribed boldly on the envelope. The name of the course should be clearly indicated in the requisition letter. The application form together with the prospectus will be issued from 25th May, 1988.

The last date for receipt of filled in applications by the University is as follows :

1. B.E./B.E. (Chem.) and B.Sc. (Ag.) — **24th June 1988**
2. Others — **30th June 1988**

The University will not be responsible for any postal delay.

R. Rajamanickam
REGISTRAR

LOK SABHA SECRETARIAT

Parliament House Annexe, New Delhi

LATEST PUBLICATIONS

AVAILABLE ON SALE

		Price Rs. P.
1.	**Parliamentary Privileges : Digest of Cases 1950-1985** (Summaries of privilege cases in the two Houses of Indian Parliament. Rulings given by the presiding officers of the two Houses on privilege matters from time to time as well as matters referred to the Committee of privileges of both the Houses have been covered and are put under suitable subject heads)	350.00
2.	**Nehru and Parliament** (The book consisting of scholarly articles and reminiscences from distinguished contemporaries of Jawaharlal Nehru fills a gap in the field of Nehru Studies. It provides valuable insights into the exciting times of our recent past as well as on Nehru's great role in building parliamentary institutions in the country. Among the contributors are Shri. R. Venkataraman, Dr. Bal Ram Jakhar, S/Shri Uma Shanker Dixit, R.R. Diwakar, Dr. Gopal Singh, Dr. Karan Singh, Professor N.G. Ranga and Dr. Subhash C. Kashyap).	150.00
3.	**Parliaments of the Commonwealth** (The articles and write-ups in this volume describe the organization and functioning of various Parliaments of the Commonwealth countries. The contributors include some of the Speakers, Presiding Officers, the Clerks and Secretaries-General of many Commonwealth Parliaments).	80.00
4.	**Constitution Amendment in India** (This documentary study on the nature, scope and operation of the Constitution amending process in India includes a brief legislative history and synopsis of each of the Constitution Amendment acts).	125.00
5.	**Glossary of Idioms** (The publication contains about 5000 English expressions, idioms and proverbial sayings alphabetically arranged at one place with their equivalents in Hindi and particular emphasis on spoken words.	80.00
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	Other Important Publications	
7.	Lok Sabha Debates (for each sitting)	6.00
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Periodicals		**Price (per copy)** **Rs. p.**	**Annual Subs.** **Rs. p.**
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4.	Servicing Parliament	10.00
5.	Parliament in the Indian Polity	15.00
6.	Socio-economic Background of Lok Sabha Members	10.00
7.	Parliament as a Multi-functional Institution	10.00
8.	Parliamentary Museum and Archives	10.00
9.	Parliaments and Information Dissemination	10.00
10.	The Parliament of India	10.00
11.	Parliament and Humour	10.00
12.	Eighth Conference of Commonwealth Speakers	10.00
13.	Vice-Presidential Election in India	10.00

Note : Nos. 4 to 13 are by Dr. Subhash C. Kashyap, Secretary-General, Lok Sabha.
Publications can be had from and further enquiries addressed to local sales agents or Sales Section, Lok Sabha Secretariat, Parliament House Annexe, New Delhi-110001.

davp 88/31

UNIVERSITY OF DELHI SOUTH CAMPUS

BENITO JUAREZ ROAD, NEW DELHI-110 021

ENTRANCE EXAMINATION FOR ADMISSION TO M.TECH. IN MICROWAVE ELECTRONICS

Applications are invited on the prescribed forms from the candidates to appear in the above examination for admission to M.Tech. in Microwave Electronics to be held on Friday the 8th July, 1988 at 10.00 A.M. at the above address.

Qualification : For admission to M.Tech., the Candidate should have passed M.Sc. in Electronic Science or M.Sc., in Physics Examination of Delhi University/ohter Universities with 55% marks in M.Sc. or equivalent grade. **OR** B.E. (Electrical Electronics Engineering) Examination from Delhi University or an examination recognised as equivalent thereto with 55% marks or equivalent grade.

General Information : (i) No person shall be qualified for admission to the M.Tech. Course in Microwave Electronics unless he/she is 21 years of age on or before 1st October, 1988.

Provided that Vice-Chancellor on the basis of individual merit may relax the age limit upto a maximum of one year.

(ii) The questions in the Entrance Examinations would be based on the following topics :

Analogue and Digital Electronics, Communication Electronics, Computer Programming, Mathematics, Electromagnetic Theory, Microwaves, Opto-Electronics and Microprocessors.

(iii) Ten stipends of Rs. 600/- each are available which will be awarded to admitted candidates in order of merit in the Entrance Examination.

The application forms can be obtained by sending a self-addressed stamped Re. 1/- envelope of 10"x4½" size to the Dean, Faculty of Inter-Disciplinary & Applied Sciences, University of Delhi South Campus, Benito Juarez Road, Dhaula Kuan, New Delhi-110 021.

The completed applications alongwith a Passport size Photograph must reach the Dean's Office by **24th June, 1988.**

P.L. Kadalbaju
DEPUTY REGISTRAR

INSA MEDAL FOR YOUNG SCIENTISTS–1989

Instituted by the Indian National Science Academy in 1974 the Medal is awarded annually in recognition of outstanding work of scientists below the age of 32 (as reckoned on 31st December preceding the year of award). Only those born on or after January 1, 1957 are eligible for consideration in 1989. The work done in India by the nominee will be taken into consideration for the award.

The awardee is presented a medal and a cash award of Rs. 5,000/-. In addition, the recipient is considered for a research grant by the Academy not exceeding Rs. 20,000/- per year, including stipend for a JRF for a period of three years for continuing research work, provided the research proposal is considered worthy of such support. Preferential consideration may be given under partial travel grant scheme for attending international conferences.

Nominations for the awards for 1989 may be made by Fellows of the Academy, established scientific societies of all India character, University faculties and departments, or the research institutions.

The last date for the receipt of nominations in the Academy is **November 15, 1988.**

Nomination Proforma can be obtained from the Indian National Science Academy, Bahadur Shah Zafar Marg, New Delhi-2 by sending a self addressed envelope of 28 cm x 12 cm size.

PANJAB UNIVERSITY (CHANDIGARH)

(Advertisement No. 6/88)

Applications are invited for the following posts so as to reach the Registrar, Panjab University, Chandigarh alongwith Postal Order of Rs. 10/- by **June 15, 1988**.

1. **Deputy Registrar**: (1) **(Permanent)** likely to increase.

   Grade: Rs. 1400-60-1700-EB-75-2000 plus Rs. 100/- p.m. as Special Pay.

2. **Assistant Registrar**: (4) **(Permanent)** likely to increase.

   Garde: Rs. 940-30-1000-40-1200/50-1400/60-1700-75-1850 plus Rs. 100/- p.m. as Special Pay.

   and

   Rs. 1200-50-1400/60-1700/75-1850 plus Rs. 100/- as Special Pay for in-service candidates from amongst Superintendents and Personal Assistants (Selection Grade).

Qualifications and Experience

For Post at Sr.No. 1

Essential: (i) Master's or LL.B. degree of recognised University or its equivalent qualification.

OR

(ii) A University employee with not less than 25 years of service in the University and who has worked as Asstt. Registrar for a period of not less than four years shall be eligible to apply for the post of Deputy Registrar irrespective of the qualifications prescribed.

Desirable : At least 5 years' administrative experience at the level of Superintendent/P.A. or above in a University or an educational institution.

OR

10 years' teaching experience in a College or a University (5 years' in the case of a teacher with Ph.D. degree), preferably with experience of administration at College/University, such as Head of the Department, Bursar, Registrar (Exams.), Officer-Incharge NCC, etc.

OR

Comparable qualifications in Research Establishment and other institutions of higher education.

For Posts at Sr. No. (2)

Essential : Master's or LL.B. degree of a recognised University or its equivalent qualifications.

Superintendents/PAs or persons holding equivalent posts in the administrative (ministerial) staff of the Panjab University with the following qualifications/experience:

(i) 10 years' service in the existing post (irrespective of the qualifications prescribed).

OR

(ii) 3 years' service in the existing post with B.A., being the minimum qualification, provided the total service as Assistant/Stenographer or equivalent or higher posts is not less than 15 years.

OR

(iii) (*) "5-years' service in the existing post in the case of matriculates provided the total service as Assistant/Stenographer or equivalent and higher post is not less than 20 years.

(*) This is subject to approval of the Syndicate.

Desirable : At least 2 years' experience of educational administration and sufficient knowledge of organisation and working of a University/affiliated colleges.

Persons already in service should route their applications through proper channel. Incomplete forms and those received after the due date are liable to be rejected unless the Vice-Chancellor condones the delay or discrepancy by a special order. Attested copies of certificates in support of the qualifications and experience be attached to the applications. Serving employees may, however, send their applications on the prescribed proforma direct to the University. They may route another copy through their department. They will be allowed to present themselves for interview only on the production of 'No Objection Certificate' from their employers. Canvassing in any form will disqualify the candidates. Higher start to deserving candidates admissible.

The Vice-Chancellor could place before the Selection Committee the name(s) of suitable person/s for its consideration alongwith the applications received in response to the advertisement.

It is not obligatory on the part of the University to call for interview every candidate who possesses the essential qualifications.

The number of vacancies may change. The University may also prepare panel of suitable candidates for appointment against vacancies occurring within a specified period.

Application forms can be obtained from the Cashier, Panjab University personally on payment of Rs. 2/- or by making a written request to the Asstt. Registrar (Estt.), Panjab University, Chandigarh accompanied with self-addressed *stamped* envelope worth Rs. 3.40 of 23 x 10 cms. a Postal Order of Rs. 2/- drawn in favour of the Registrar, Panjab University, Chandigarh-160014.

CLASSIFIED ADVERTISEMENTS

ALIGARH MUSLIM UNIVERSITY
ALIGARH

Advertisement No. 2/88-89

Dated : May 15, 1988

Applications on the prescribed form are invited for the following posts :

Professor : Rs. 4500-7300 plus allowances.

Readers : Rs. 3700-5700 plus allowances.

Lecturers : Rs. 2200-4000 plus allowances.

1. **Professor of Arabic, Department of Arabic.**

Qualifications

I—Essential

An eminent scholar with published work of high quality actively engaged in research. About ten years experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

II—Desirable

Knowledge of modern Arabic language and literature and command in written and spoken Arabic.

2. **Reader in Political Science, Department of Political Science**

3. **Readers in Computer Science, Department of Computer Science**

4. **Reader in Home Science, Women's College.**

Qualifications

I—Essential

Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.

About five years experience of teaching and/or research provided that at least three of these years were as Lecturer or in an equivalent position.

This condition may be relaxed in the case of candidates with outstanding record of Teaching/Research.

II—Desirable : For Post at Sl. No. 3 Reader in Computer Science

Experience of teaching and research in any of the areas of Theoretical Computer Science, Operating System, Information Systems, Computer Architecture, Computer Graphics and Communicatio networks.

5. **Reader in Civil Engineering (Structura Engineering), (Temporary but likely t become permanent), Department o Civil Engineering.**

6. Reader in Mechanical Engineering (Fluid Mechanic), Department of Mechanical Engineering.

Qualifications

I—Essential

A good academic record with a Doctor's degree in a relevant field. About five years experience of teaching and/or research and development.

Provided further that candidates not possessing Ph.D. may be considered if they have to their credit equivalent research published work or design/development work of a high order either in the Institution or in an Industry.

OR

In the case of persons to be recruited from Industry or Professional fields, candidates should possess good academic record with recognised professional work of about seven years which should include innovation and/or research and development.

II—Desirable : For Post at Sl. No. 6 Reader in Mechanical Engineering (Fluid Mechanic).

Published research work in reputed Journals, teaching experience to Post-graduate classes.

7. Lecturers in Arabic (One permanent and one Temporary but likely to become permanent), Department of Arabic.

8. Lecturers in Computer Science, Department of Computer Science

Qualifications

I—Essential

(a) A Doctor's degree or research work of an equally high standard; and

(b) Good academic record with atleast second class (C in the seven point scale) Master's degree in a relevant subject from an Indian University or an equivalent degree from a foreign University.

Having regard to the need for developing interdisciplinary programmes the degrees in (a) and (b) above may be in relevant subjects.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a good academic record (weightage being given to M Phil. or equivalent degree or research work of quality) may be appointed provided he has done research work for atleast two years or has practical experience in a research Laboratory/Organization on the condition that he will have to obtain a Doctor's degree or give evidence of research of high standard within eight years of his appointment, failing which he will not be able to earn future increment until he fulfils these requirements.

II—Desirable : For Post at Sl. No. 8 Lecturers in Computer Science

Experience of teaching and research in any of the areas of Theoretical Computer Science, Operating Systems, Information Systems, Computer Architecture, Computer Graphics and Communication networks.

9. Lecturers in Electrical Engineering, Department of Electrical Engineering.

Qualifications

I—Essential

(a) Master's degree in appropriate field in engineering/technology.

(b) Consistently good academic record with a bechelor's degree in Engineering/Technology. First class at Bachelor's degree and/or Master's degree level.

(c) One year's relevant professional experience outside academic / research institutions.

Having regard to the requirement of emerging fields of Engineering and of developing inter-disciplinary programmes, the requirements of Engineering/technology degrees may be waived in the cases of otherwise well qualified candidates.

Provided further that if a candidate does not possess professional experience or a person possessing such experience is not found suitable, the person appointed will be required to obtain desired professional experience within a period of five years of his appointment failing which he will not be able to earn future increments, until he fulfils this requirement.

If the candidates with M.Teck./M.E. qualifications are not available or not found suitable for appointment the essential qualifications may be relaxed and first class Engineering graduates may be appointed subject to the condition that the candidate concerned shall have to obtain the M.Tech./M.E. degree within a period of five years ailing which he will not be able to earn future increments until he acquires the prescribed qualifications.

10. Lecturer in Architectural Assistantship, University Polytechnic.

Qualifications

Bachelor's degree in architecture plus two years of relevant professional experience.

OR

Master's degree in architecture and one year's relevant professional experience.

Provided further that if a candidate does not possess a master's degree in architecture and professional experience or a person possessing such experience is not found suitable, the persons appointed will be required to obtain the desired professional experience within a period of five years on his appointment failing which he will not be able to earn future increment until he fulfils this requirement.

11. Reader in Bio-Physics, Department of Bio-Chemistry, JN Medical College.

Qualifications

I—Essential

M.D. (Biophysics)/
Ph.D. (Biophysics)/
M.D. (Physiology) or
M.D. (Bio-Chemistry) with one year training in Bio-physics

Teaching/Research Experience.

As Lecturer in Bio-Physics for five years in a Medical College.

II—Desirable

The candidate should have made notable contributions in Biophysics/Biophysical Chemistry and in particular in the areas of conformation of proteins, nucleic acid, conformational transitions and protein folding.

Job Specifications

The selected candidate will be responsible for organising the teaching and research programme in Biophysics, particularly in the areas of structural studies of Protons and nucleic acids.

Note : If candidates with Medical qualifications are not available, or are found unsuitable, candidates with Ph.D. Degree in Physics/Chemistry who have worked on Biophysical problems for 5 years after obtaining their Ph.D. degree may also be considered for appointment.

12. Reader in Anatomy (Temporary), Department of Anatomy

Qualifications

M.S. (Anatomy)/
MBBS with M.Sc. (Anatomy)/
Ph.D. (Medical Anatomy)/
D.Sc. (Medical Anatomy)

Teaching/Research Experience

As Lecturer in Anatomy for 5 years in a Medical College

13. Reader in Cardiothoracic Surgery, Department of General Surgery.

Qualifications

I—Essential

M. Ch. (Thoracic Surgery)

Teaching/Research Experience

As Lecturer in Thoracic Surgery for 5 years in a Medical College

II—Desirable

Research experience and publications in the speciality

14. Assistant Librarian (Two posts) (Permanent) Maulana Azad Library.

Scale of Pay: Rs. 700-1600 plus allowances (Pre-revised)

Qualifications

I—Essential

(a) Good academic record with atleast High Second Class Master's degree in a subject other than Library Science.

(b) First class or high second class Master's degree in Library Science.

II—Desirable

At least three years experience as Professional Assistant in a University or an Institution of higher learning. Experience/Knowledge of documentation work/Computer based information work.

15. Medical Officer (Blood Bank) (One post) (Permanent). JN Medical College Hospital.

Scale of Pay: Rs. 700-1600 plus allowances (Pre-revised)

Qualifications

I—Essential

(a) M.B.B.S.

(b) PG Degree or Diploma in Pathology.

(c) Three years experience as Blood Transfusion Officer in a recognised Hospital or three years experience of working in a Blood Bank of a teaching Hospital.

II—Desirable

Special training in Blood Transfusion from a recognised institution.

16. System Analyst Grade II (One post) (Temporary but Likely to continue), C.C. Unit, Controller's Office.

Scale of Pay : 1640-60-2600-EB-75-2900 plus allowances.

Qualifications

I—Essential

1. Post B.Sc. Diploma in Computer Science Applications/Bachelor's Degree in Computer Science.
2. Atleast three years experience of using packages like file editor, word processor dBase, LOTUS-1-2-3-etc. which should include atleast one year experience of operating system management on multi programming time sharing Computer System.
3. Working knowledge of command language and Programming language like FASCAL, BASIC, FORTRAN COBOL.

OR

1. Bachelor's Degree in Science.
2. Atleast five years experience of using packages like File editor Word Processor, dBASE, LOTUS-1-2-3 etc. and operating system management on multi programming time sharing Computer System.
3. Working knowledge of command language and Programming languages like FASCAL, BASIC FORTRAN, COBOL.

17. Staff Nurses (17 posts) (Permanent), J.N. Medical College Hospital

Scale of Pay : Rs. 1400-40-1600-50-2300-EB-60-2600 plus allowances.

Qualifications

Essential

Registered Nurse and Registered Midwife of B.Sc. (Nursing).

18. Technical Personal Assistant (Computer) (Ona post) (Temporary but likely to continue), C.C. Unit, Controller's Office.

Scale of Pay : Rs. 1400-40-1800-EB-50-2300 plus allowances.

Qualifications

I—Essential

1. Bachelor's degree.
2. Diploma in Computer Programming.
3. Atleast two years experience of operation of time sharing Computer System, using software packages like File Editor, Word Processor, dBASE LOTUS-1-2-3 etc.

OR

1. B.Sc. degree.
2. Atleast three years experience of operation of time sharing Computer System using software packages like File Editor, Word Processor, dBASE, LOTUS-1-2-3 etc.

19. Technical Assistant (Store) (One post) (Permanent) Department of Bio-Chemistry, Faculty of Life Sciences.

Scale of Pay : Rs. 1400-40-1800-EB-50-2300 plus allowances.

Qualifications

I—Desirable

1. B.Sc./B.Com.
2. Two years experience in the relevant field after obtaining degree.

II—Desirable

(a) The experience should preferably be in Biochemistry or Chemistry Department.
(b) Knowledge of use of microcomputers in maintaining stores inventory and accounting.

20. Technical Assistant (Store) (One post) (Permanent) Department of Applied Physics, Z.H. College of Engg. & Technology.

Scale of Pay : Rs. 1400-40-1800-EB-50-2300 plus allowances.

Qualifications

I—Essential

B.Sc./B.Com. with two years experience in the relevant field after obtaining degree.

OR

Diploma in Mech./Elect. Engg. with three years experience in the relevant field after obtaining Diploma.

II—Desirable

Experience in Book Keeping and Accounts.

21. Research Associates (Two posts) (Temporary), Department of History.

Scale of Pay : on a fixed honorarium detailed below :

Category	**Value**
'A'	Rs. 1,400/- p.m.
'B'	Rs. 1,600/- p.m.
'C'	Rs. 1,800/- p m.
'D'	Rs. 2,000/- p.m.

Qualifications

I—Essential

Doctoral Degree and independent published work in any field of Medieval Indian History.

II—Desirable

Age below 45 years (For Men) and Age below 55 years (For Women)

22. Trained Graduate Teacher (Urdu) (One post) (Permanent), A M.U. City High School.

Scale of Pay : Rs. 1400-40-1800-EB-50-2300 plus allowances.

Qualifications

I—Essential

1, Graduate with Urdu an one subject in the graduation Course (or equivalent recognised degree).
2. Degree/Diploma in Education.
2. Atleast five years experience of teaching upto High School classes in a recognised Institution.

II—Desirable

Ability to arrange extra-curricular activities such as Drama and debates etc.

23. Trained Graduate Teacher (Physics) (One post) (Permanent) A.M.U. City High School.

Scale of Pay : 1400-40-1800-EB-50-2300 plus allowances.

Qualifications

Essential

1. B Sc. (with Physics as one of the subjects)
2. Recognised degree or Diploma in Education.
3. Ability to teach through Urdu, Hindi and English medium.

24. Trained Graduate Teacher (Chemistry) (One post) (Permanent), A.M.U. City High School.

Scale of Pay : 1400-40-1800-EB-50-2300 plus allowances.

Qualifications

Essential

1. B.Sc. (with Chemistry as one of the subjects).
2. Recognised degree or Dipoma in Education.
3. Ability to teach through Urdu, Hindi and English Medium.

25. Key Punch Operator Gr. I (Four Posts) (Permanent) Computer Centre.

Scale of Pay : Rs. 1320-30-1560-EB-40-2040 plus allowances (Revised).

Qualifications

Essential

1. Bachelor's degree or Diploma in relevant field.
2. Atleast two years experience of handling data processing machines and of using packages like File editor, Word Processor, dBASE. LOTU5-1-2-3- etc. on PC/Computers. Key in speed 10,000 depressions per hour.

OR

1. Higher Secondary or equivalent.
2. Atleast 6 years experience of handling data processing machines and of using packages like File editor, Word Processor dBASE, LOTUS-1-2-3- etc. on PC/Computers. Key in speed 10,000 depressions per hour.

26. Senior Laboratory Assistant (Ono post) (Permanent) Department of Physics.

Scale of Pay : 1320-30-1560-EB-40-2040 plus allowances.

Qualifications :

I-Essential :

1. B.Sc.
2. One year experience in the relevant field after obtaining degree.

OR

1. Higher Secondary (Science)
2. Six years experience in the relevant field after passing Higher Secondary.

27. Primary Teacher (One post) (Permanent), A.M.U. City Branch School

Scale of Pay : 1200-30-1560-EB-40-2040 plus allowances

Qualifications

1. Matric trained

   OR

   Higher Secondary with J.B.T. 2 years.

   OR

   Intermediate (or 10+2 course) with J.B.T. one year.

   OR

   Graduate with five years teaching experience in Primary School (with the proviso that he/she will complete a recognised formal training course within three years).
2. Ability to teach through Urdu/Hindi/English medium.

28. Wireman (Three posts) (Permanent), Department of Electricity (Work & Maintenance Section)

Scale of Pay : Rs. 975-25-1150-EB-30-1540 plus allowances.

Qualifications

(i) Wireman's Licence
(ii) Two years experience of different types of internal wiring.

Note : The candidates will have to undergo a practical test before interview.

Higher initial start may be given to candidates possessing exceptional qualifications and experience. Candidates interviewed may be paid contribution towards their T.A. equal to one single second class Railway fare only.

Prescribed application forms and instructions may be had from the Assistant Registrar (Selection Committees), Registrar's Office, A.M.U., Aligarh on payment of Rs. 10/- for posts at S.No, 1 to 16 and Rs. 7/- for remaining posts to be deposited in the Cash Section, Finance Office, A.M.U., Aligarh or through an Indian Postal Order payable to the Finance Officer, A.M.U., Aligarh either personally or by sending a self-addressed stamped envelope of size 9'' x 4''.

Last date for receipt of applications is 30th June, 1988 (during office hours). Incomplete applications and those received late will not be considered.

Jawed Usmani (IAS)
REGISTRAR

SARDAR PATEL UNIVERSITY

VALLABH VIDYANAGAR-388 120 (Gujart)

Notification No. EST/2(1988-89)

WANTED

I. Professor of : (1) Computer Science (M.C.A. Course) and (2) Education.

Pay Scale : Rs. 1500-2500.

II. Reader in : (1) Statistics (2) Home Science (Foods and Nutrition—Two posts) and (3) Library Science.

Pay Scale : Rs. 1200-1900.

III. Lecturer in : (1) Sociology (2) Economics (3) Education; and (4) Library Science.

Pay Scale : Rs. 700-1600.

IV. Non-teaching Posts : (1) Co-ordinator (Temporary for Examination Reforms Unit) (2) Statistician (Temporary for Examination Reforms Unit) and (3) Technician (For Physics Department).

Pay Scale : For (1) and (2) : Rs. 3000-4500 and for (3) Rs. 2200-4000.

All posts except at Sr. No. IV (1) and (2) carry benefits of Dearness Allowance, G.P.F., Gratuity and Pension as per University rules, posts at Sr. No. IV (1) and (2) carry D A. only. Qualified candidates from SC/ST will be given preference. SC/ST candidates must attach bonafide certificate from proper authority.

Applications for the above posts must be made in the prescribed forms available on payment of Rs. 5/- in cash or by I.P.O. to the University. Detailed qualifications will be supplied with the forms. The last date for receipt of applications is **20.6.1988.**

Niranjan Upadhyaya
I/c. REGISTRAR

UNIVERSITY OF MADRAS

UNIVERSITY BUILDINGS

Chepauk, Madras-5

NOTIFICATION

Applications are invited for admission to the following courses in the University Deportments at the **Dr. A.L. Mudaliar Post-Graduate Institute of Basic Medical Sciences, Taramani, Madras-600 113**, during the academic year 1988-89;

MD Course in Microbiology
MD Course in Physiology
MD Course in Pharmacology
MD Course in Pathology
Diploma Course in Clinical Pathology

Prospectus and Application Forms can be had from the Registrar, University of Madras, Madras-600 005, on requisition with a Demand Draft for Rs. 30/- (Rs. 20/- for the Prospectus and Application Form for Diploma in Clinical Pathology Course) drawn in favour of the Registrar, University of Madras; together with a self-addressed stamped envelope (size 28 *x* 13 cms.) for Rs. 1-80. **Last date for issue and receipt of filled in applications is 30th June, 1988. Postal Orders and Money Orders are not accepted. Filled in applications should be sent directly to the Head of the University Department concerned at Dr. A.L. Mudaliar Post-Graduate Institute of Basic Medical Sciences. Taramani, Madras-600 113 and not to the Registrar, University of Madras, before the expiry of the last date.**

The University reserves the right to start or suspend the conduct of any of the above courses, if the circumstances so warrant.

Major Dr. P. Kuttiappan
REGISTRAR

UNIVERSITY OF KALYANI

KALYANI, WEST BENGAL-741235

Adv. No. 3/88 **Dated : 23.5.88**

Applications in prescribed form are invited for the undermentioned posts on the scale mentioned below with allowances as admissible under the University rules.

1. Professor of Sociology — One post
   Specialisation in any branch of Sociology
2. Lecturer in English — One post
   Specialisation in any branch of English
3. Medical Officer — One post
4. Reader in Education — One post
   Desirable qualification—Educational Technology / Ednl. Statistics & Psychology/Research Methodology/ Teoching Learning/Mental Health & Hygiene.

Lecturer in Commerce — One post

Specialisation : Accountancy at the Degree level.

Desirable : Professional degree / Diploma in Accountancy.

Professor — One post
(in DSA programme in Botany) Temporary.

Specialisation in any branch of Botany relevant to Molecular Botany and Doctorate Degree.

Scale of Pay : Professor—Rs. 1500-60-1800-100-2000-125/2-2500/-

Reader and Medical Officer—Rs. 1200-50-1300-60-1900/-

Lecturer—Rs. 700-40-1100-50-1600/-

Age : Professor and Reader—Preferably below 50 years

Lecturer—Preferably below 40 years

Medical Officer—Age not below 35 years. Relaxable in the case of exceptionally qualified candidates.

Those who had applied previously in prescribed form for the post of Professor of Sociology vide Adv. No. 7/84 dated 21-12-84 need not apply again. Such candidates may update their biodata. A circular containing details of qualifications, pay and allowances and other relevant information may be had from the office of the undersigned from 1-6-1988 to 21-6-1988 between 11-30 a.m. and 3 p.m. on working days separately or alongwith the application form on payment of Rs. 7.50 (charge one fourth for scheduled caste and scheduled tribes candidates) by current Crossed Indian Postal Order in favour of the "University of Kalyani" personally or by sending self-addressed stamped (Rs. 1.80) envelope (25 cm x 12 cm). Application forms complete in all respects according to instructions given in the circular must reach the office of the undersigned on or before **21-6-88.**

The principle of reservation of posts for candidates to Scheduled castes and scheduled tribes shall be followed to the extent possible as per orders issued by the State Govt. from time to time.

The scheduled castes and tribes candidates must produce copies of caste certificate from the appropriate authority (S.D.O.) in their own area at the time of collection forms. Candidates called up for interview will have to appear for the same at their own cost.

P. Sircar
REGISTRAR

INDIRA KALA SANGIT VISHWAVIDYALAYA

KHAIRAGARH, M.P., 491 881

APPLICATIONS are invited for the following posts in the University Teaching Departments, viz: **A—PROFESSOR :** One, for Instrumental Music, **B—READERS :** Three, one each for 1/Reader-cum-Director for Research Cell, 2/Kathak Dance, 2/Violin., **C—LECTURERS :** Two, one each for 1/Flute (Instrumental Music) 2/Thumri (Vocal Music) : **D—MATRON** : for girls hostel.

Scales of Pay : Professor : 1500-60-1800-100-2000-125 / 2-2500/., **Readers :** 1200-50-1300-60 1900/-., **Lecturers :** 700-40-1100-50-1300 - Assessment-50-1600/- (Pre-revised scales)., **Matron :** 500/- (Fixed pay).

Qualifications: For Professor, Readers and Lecturers, as prescribed by the University Grants Commission. Details of qualifications for Professor, Readers and Lecturers, as also for other posts may be obtained from the Registrar.

POSTS are permanent and carry CPF benefits and DA/ADA at University rates from time to time. Appointments will be on probation according to University rules. Retirement age 60 YEARS.

RESERVATION for posts for SC/ST will be according to Government rules. If candidates are not available or not found suitable, posts will be filled up from general categories.

PRESCRIBED forms (in four copies) obtainable by sending self-addressed stamped envelope of Rs. 3.00 for 25 x 12 cms. Application fee Rs. 25/- for PROFESSORS, Rs. 20/- for READERS, Rs. 15/- for LECTURERS, Rs. 5/- for MATRON in the form of IPO. Last date for receipt of applications in four copies is **25th June 1988.** The University reserves the right to keep vacant any of the advertised posts without assigning any reason.

CANDIDATES called for interview, will be required to come at their own costs. The University does not pay TA/DA or any other expenses for journey for interview.

CANDIDATES will be provided dormitory type free lodging (without bedding) in the University Campus, if informed well in advance.

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University News

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MONDAY, JUNE 13, 1988 Rs. 1.50

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ational Seminar on Monitoring and Implementation of the National Education Policy held at Manipur University recently. Picture shows (from L to R) Prof. K.J. Mahale, Vice-Chancellor, Manipur University, Shri R.K. Joychander Singh, Chief Minister of Manipur and Prof. S.K. Agrawala, Secretary, AIU.

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Editor :
SUTINDER SINGH

International Co-operation of Universities In Research*

L. S. Srinath**

The word "Research" has been defined in a very broad sense by Sri John Kingman to cover the whole activity of acquisition of knowledge, refinement and codification of knowledge and advancement of knowledge. It is also stated that this knowledge is to be transmitted in a number of ways for the benefit of the community. It is in the context of these that international cooperation of universities in research is to be analysed. I will be touching upon collaborative research programmes only and the remarks are based upon my personal experience and the cases cited are related to my present institution.

Cooperation, both national and international, in all those activities that are beneficial to mankind is highly desirable. Many national and international organizations exist to promote such endeavours not only in general activities, but also in research activities. These organizations have been functioning for many years with good service records. While these world organizations are primarily promoting and managing agencies, the real active research work gets done, by and large, at the level of individuals and groups of individuals. While dissemination of knowledge is taking place in a variety of modes, real cooperation in active research is beset with many difficulties. Let me cite an example. I will be focussing my attention and emphasising on collaborative research programmes.

The Indian Institute of Technology (IIT), Madras, was established about twenty six years ago, as a joint venture between the Government of India and the Government of the Federal Republic of Germany. During the initial stages, the contributions from West Germany were directed towards establishing academic departments, providing necessary sophisticated equipment, sending experts for long periods of time. and to a limited extent guiding the academic programmes. As the Institute started growing, the aid mainly assumed the form of providing grants for epuipment, offering limited training facilities to faculty and staff, and also making it possible for a limited number of experts to visit IIT-Madras for short durations. To-day, IIT-Madras is one of the premier academic institutions in the country with good international reputation. During the last eight years, IIT-Madras is associating itself with a few a selected German Universities in a large number of Joint Research Programmes. Each joint research programme involves two investigators—one from IIT-Madras and the other from one of the universities in Germany. A problem of common interest is identified, on which investigations get carried out at both places. The results of these investigations are shared for mutual benefit. The project provides opportunities for brief visits of the investigators concerned to each other's laboratories. One would think that such a programme would be an ideal example of international cooperation or collaboration in research. But, a detailed examination reveals that the results of these joint research programmes are not all that exciting as one would have hoped or liked to see. It is in this background that I would like to make the following remarks.

**Paper presented at the 14th Quinquennial Commonwealth Universities Congress, 7-12 February, 1988.*

***Director, Indian Institute of Technology, Madras 600036.*

Research, to me, is a highly personalised or individualistic activity. For persons working in academic institutions, success in research means same kind of ego satisfaction, recognition through publications in referred journals, through presentation of research findings in national and international conferences, etc. Career advancement, future opportunities in administrative cadres, etc., are also involved.

In the Universities, one of the common methods of getting research activities done is through research students who have registered themselves for some degree programmes. This factor imposes some serious constraints on the types of problems chosen. In order that one research worker may collaborate with another, it is necessary that a need should exist for active and voluntary collaboration. Some of the needs are obvious. These are :

Common problems or areas of investigation;
Desire to share result for mutual benefit;
Optimum utilisation of time and effort without much duplication;
Optimum utilisation of resources at one's disposal; etc.

Unfortunately, research as a highly personalised or individualistic activity with ego satisfaction, cannot easily accommodate these requirements. This is particularly so in the field of science and technology. Of course, in those areas of research work which involve national security, product or market competition, etc., free and active collaborations at international levels are not at all possible. Such topics are not being discussed in this presentation.

In the example cited, i.e., Joint Indo-German Research, though the problems that were identified for joint investigations were of common interest, the nature of these problems did not lend themselves to much exciting results. Consequently, over a period of time, the interest in these gradually waned. In addition to these, as the research work involved students who were anxious about their research degrees, the nature of problems got changed to meet institutional and other degree requirements. An added complication was, the research investigators in both universities became engaged more and more in those problems which were funded through their own several national funding agencies. Consequently, there was no common pace of progress in the areas that were initially identified. Very few publications based on the joint research., activities have appeared. However, the research investigators have been actively engaged in various other research problems. Of course, there were a few notable exceptions. But, what we thought was an ideal set up did not function. Another interesting aspect was the following. At the initial stages, there were considerable interests for the professors from the German Universities to come and spend considerably long periods of time in India. Over the years, this interest waned and the same professors started travelling to China and a few other South Asian countries. India, as a country of tourist and other interests got replaced by China as a new venture place. An analysis of those research problems which could be considered as reasonably successful for cooperation belonged to either humanities and social sciences or those areas dealing with agricultural sciences, low cost housing, pest control, etc. There were no problems which one would classify as belonging to hi-tech or to frontiers of science.

Having made these statements, let me start once again from the beginning. First, about the need.

We all agree that there definitely exists a need for international cooperation in research; particularly when research deals with knowledge; I mean knowledge in the true sense, when the knowledge is for the betterment of mankind and the world the mankind lives in. But, we all know, that this is as unrealistic a notion as the new economic order. In reality, there are severe constraints and restrictions for international cooperation in research. We can appreciate these constraints when we realise how research work gets done in the Universities. In these activities, either individuals or small groups of individuals are involved. Further, by and large, most of the research activities are not de novo activities. This is revealed by the way the research papers appear in journals. Each paper is an extension of earlier ones, as given in the references cited; and the current papers give rise to a new set of papers in which the current papers appear in their cited references. The reputation of a paper depends on the number of times it gets cited and the number of new papers it gives rise to. Dissemination of knowledge and generation of new papers through such publications is one of the commonest methods in the international scene. Now, for two individual research workers from two different countries to come to an agreement to carry out joint or collaborative investigations, several conditions have to be satisfied.

There should exist a common desire for collaboration.
The problem chosen should be broad enough, so

that the results of the two investigations are complementary or reinforcing and not merely duplication.

There should be no communication barrier, either in the language or in sharing fully the results of the investigations.

The level of competence of the two investigators must be comparable.

The resources available, financial as well as facilities, should be adequate in both the countries.

Exchange of information should be fairly frequent.

The efforts of each investigator should be capable of being assessed independently.

The results of investigation should provide opportunities for the ego satisfaction and recognition of both partners. It should at the same time provide opportunities for their individual growth and career opportunities in their respective institutions.

The problems chosen should not be in conflict with their respective national security or other protective national interests.

One can certainly think of a few more constraints of the above types. The solution space, which meets all the previously mentioned constraints, is naturally extremely small. The categories of problems on which international cooperation is possible will therefore be very limited. Problems in the areas of hi-tech are definitely out of the picture. Problems dealing with national security and defence are also out. Under these circumstances, what kinds of problems lend themselves either for co-operative research or for sharing of information ?

Problems in the area of humanities and social sciences are possible. Agriculture, animal husbandry, health, family planning are possible.

Low cost housing, appropriate technology developments; certain types of alternative sources of energy like Windmill, Biogas, Wave energy; epidemic disease control, are also possible areas.

Fundamental research investigations whose results are not immediately known or cannot be visualised yet are also possible.

One can enumerate a list of such problems or problem areas on which international cooperation and collaboration is possible. But, one common characteristic of a large majority of such problems is that the interest in their solutions will be one-sided. For example, in the case of low cost housing or low cost construction materials, more interest will be shown from the developing countries. So is, in the case of appropriate technologies, family planning, etc. This raises an interesting question, i.e., whether cooperation is not possible among the universities in developing countries themselves, since they apparently share common problems. Unfortunately, the number of such ventures are rather limited. This may be due to large variations in the quality and standards among the research investigators, capability of resource mobilisation, and a few other incompatible and disparate factors that exist among the developing countries. Further, resources, particularly financial resources being a constraining factor among the developing countries, the potentiality for collaboration does not appear to be high. An intesting paradox is the following. Let me state it without bringing in too many complexities.

I started with the premise that, for cooperation and collaboration in research to take place, there should exist a need or a desire among the research workers for such collaboration. If such a desire were to be mainly towards knowledge sharing and knowledge dissemination, and totally directed towards the betterment of mankind, it is obvious that there should be no hesitation for cooperation. Further, if one were to identify a class of problems that is common to a group of countries, then it is advantageous if these countries could share the knowledge among themselves for their mutual benefit. Unfortunately, this kind of cooperation does not take place naturally, unless deliberate attempts are made to promote them. Even in these cases, very few success stories exist. The so called dedicated or committed research workers belonging to this category are very small in number. The so called active research worker wants to shine by himself. He desires recognition. So, he focusses his attention towards the activities of the world outside his own country. This is one of the reasons for the frequent statements made that many of the research activities carried out in developing countries are irrelevant to their needs. Very few instances exist where a worker from India or Pakistan desires recognition in Sri Lanka, or a research worker from Sri Lanka desires recognition in West Indies, or a research worker from West Indies seeks recognition in one of the African countries. The attention, by and large, is focussed towards advanced or developed countries.

Under these circumstances, what kinds of international cooperation in research can one think of ? If by cooperation in research we merely restrict ourselves to dissemination and sharing of knowledge, then one can say that this has been going on fairly successfully in several modes, particularly when this knowledge pertains to unclassified categories. Improvements are possible, but these will bring only marginal changes. To me, what is important is active collaboration in research. Because, in this process,

problems of mutual interest are identified;
experts are identified;
efforts are made to provide enough resources and facilities based on the project requirements;
there is some sort of time constraint;
efforts and results are complementary;

and more than anything else, it brings a sense of participation and commitment.

While universities are the real sources of wealth and reservoir of intellectual power, at the same time, the elements of these systems are so individualistic that it is difficult to bring a degree of coherence among the elements for effective cooperation. Hence, a deliberate attempt should be made to bring these elements together. I would like to cite two proposals which are under our consideration, wherein the graduate students play the role of bridging elements.

The first one concerns joint Ph.D. guidance programme between IIT-Madras and a few selected universities in Germany. Under this programme, a research student has two guides, one from IIT-Madras and the other from a German University. A common research topic is identified and the student carries out the investigation initially in one of the institutions. A year later, he moves to the other institution and spends about a year under the supervision of the joint guide. The degree awarded comes from the institution to which the principal guide belongs. The important point to appreciate is that there is a joint responsibility between the two guides coming from two different institutions, with time constraint built in.

An interesting and at the same time a paradoxical thing that makes this kind of joint collaborative project successful at international level is the following. In India, just like in many developing countries, the industry-funded research is fairly small. Most of the research funds come from the Government and Government agencies. In recent years, the funds available for research are substantial. Consequently, not only have the research topics tended towards basic research, but also the sources of these problems are external to the country. Hence, it has always been possible to find problems of common interest, but not of much relevance to the needs of the country.

The second proposal deals with a recent offer that has come from one of the universities in Canada. This university wants a selected number of students who have registered themselves for a degree, to undergo all the course requirements at IIT-Madras and then go to Canada to complete the dissertation requirements. The research students obtain the degrees awarded by the particular Canadian University. While this scheme is quite attractive from the students' point of view, this reduces IIT-Madras to merely a teaching institution. This scheme is still under discussion for possible modification.

The third scheme that we plan to initiate soon involves industry as the bridging element. We recently acquired a mainframe computer from the Siemens Company in Germany. In this process, we have come to an understanding that the computer softwares that Siemens sells to various industries and other establishments will be developed jointly by IIT-Madras, the University of Aachen and the University of Kaiserslautern. In this, the Siemens Computer Corporation is the bridging element between these academic institutions. This particular scheme with suitable modifications can be copied advantageously by the Universities in Commonwealth Countries and multinational industrial set ups with their bases in these countries. International consultancy, joint product developments, developments of new technologies on a cooperative basis, are some of the possibilities.

In this brief paper on International Cooperation in Research, I have laid greater emphasis on active collaboration in research. Solutions are not simple, but I have tried to indicate a few schemes that have the potentialities of success, based on cases related to my institution. ☐

* * *

Researches In Educational Finance

Problems & Perspectives

J. L Azad*

This paper seeks to examine the present status of researches in educational finance in India with particular reference to its quantitative dimensions. An attempt has also been made to delineate the broad strategies of research development in this field. The discussion has been divided into two parts.

In **Part I**, an attempt has been made to subject the present status of research in educational finance to a critical review. Besides making a quantitative analysis of the research effort in this area in the post-independence period, a critical review has been made of the nature and type of researches conducted in this field. No attempt has, however, been made to assess the quality of researches completed so far.

In **Part II**, the research needs in the area of educational finance have been identified. Effort has also been made to specify the broad contours of the proposed researches in this field.

PART I

(a) A Quantitative Analysis

Educational research in Indian universities, besides being small in quantity and "mediocre or poor in quality"[1] is by and large traditional and stereotyped. A careful look at the researches coming out of our university institutions would reveal the preponderance of researches in conventional areas like educational philosophy, educational psychology, educational measurement, etc. While it is not intended to minimise the importance of these areas, it is disheartening to note that preciouse little attention has been bestowed to the newly emerging areas of research like economics of education, including educational finance, population education, ecology and education, and a host of related fields of research.

Although finance is a very crucial input in the development of education all over the world and its real or imaginary inadequacy has been debated at the various world forums, very few researches have been carried out to study the variegated problems of educational finance. The inadequacy of research effort in this field can be realised by the fact that, during the period 1956-74, out of over two thousand studies on economics of education (including articles, papers in journals) listed by Blaug (1978)[2], only less than 200 were concerned with problems of educational finance and costing. Out of these, the developing countries of Asia, Africa and Latin America accounted for only 35 studies. By no means a significant achievement.

In India, although the first recorded study on educational finance was made about 100 years ago, the subject has not attracted adequate attention of researchers either at the doctoral or post-doctoral stages. All through the British period, except for the various commission and committees, appointed by the British rulers from time to time, which studied the problems of educational finance from a purely functional point of view, there had been no attempt to study the different aspects of educational finance. Even after the attainment of independence, the subject has not attracted sufficient attention of the research scholars, so much so that the first ever study on educational finance was completed 12 yeas after the British Raj bowed out of this country.

The over all position about researches in educational finance has been far from encouraging even in the most recent period. This is evident from the fact that during the years 1981 and 1982, out of 148 theses accepted by the Indian Universities[3] for the award of the degree of Ph.D. in Education, only 7 were relating to the area of economics of education; out of this only 2 were concerning the problems of educational finance. Under Economics, out of 157 doctoral theses accepted by the universities, 7 related to economics of education and only one related to educational finance. Further under Sociology and Social Anthropology, out of 69 theses accepted by the universities, 3 related to economics of education and none related to educational finance.

The inadequacy of research in educational finance is evident from the following table, which gives the

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**Consultant, Economics of Education Unit, Research Cell, Association of Indian Universities, New Delhi-110002.*

break-up of 17 doctoral theses under the subject of Economics of Education accepted by the universities during 1981-82 under the departments of Education, Economics, Sociology and Social Anthropology :

Subject Areas	Number of Doctoral theses accepted
Educational Finance	3
Educational Planning	2
Economic aspects of Education	4
Education and Employment	1
Socio-economic Status and Education	5
Others	2
Total	17

(b) Thematic Review

Researches in financing and costing of education in India could be broadly divided into the following two categories :

(i) Researches/studies/surveys commissioned by the government and its specialised agencies. These studies are mainly problem specific.

(ii) Researches undertaken by individual researchers. These researches are of theoretical as well as applied character.

Under category (i), mention may be made of the pioneering attempt at working out, among other things, the costs of educational reconstruction in the post-Second World War period by a Committee of the Central Advisory Board of Education (known as the Sargent Committee)[4]. Soon after the British hegemony ended, the Government of India appointed a high-powered Commission of University Education[5] under the Chairmanship of the Late Dr. Sarvpalli Radhakrishnan. The Commission examined, in a voluminous but extremely readable report, the problems of university finances as a part of the overall problems of university development. This was followed by the appointment of a Committee,[6] under late Shri B.G. Kher, to report on the methods of financing education including higher education in India. Some of the state governments also appointed committees to study the system of education in their respective areas including the problems of finance. The Education Commission (1964-66) also brought out a number of studies including those pertaining to financing of educational programmes.

The study group on the Resource Mobilisation for Education set up by the Ministry of Education in its report (1970)[7] reviewed the existing measures adopted by the state governments for raising resources for education and suggested additional measures for raising resources and using those resources and other facilities optimally.

The studies[8] sponsored by the Indian Council of Social Science Research related to micro-analyses of finances of selected universities. The six universities that have been studied are : Calcutta (Mukherjee, 1974), Kerala (Mathew, 1974), Patna (Jha, 1974), Rajasthan (Nigam, 1974), Karnataka (Nanjundappa, 1976), and Bombay (Panchamukhi, 1977). Some more studies are still under way. These studies have major focus on sources of finances and their relative importance, the adequacy or otherwise of the university revenues; expenditures under different heads and difficulties faced by the universities due to financial inadequacy.

While the major themes of these studies are almost similar, the individual scholars have varied their emphasis on certain essential details. For example, Panchamukhi[9] examined question like whether individual institutions are making enough efforts to mobilise resources and whether they are spending the funds efficiently and economically. He also worked out the quantum of subsidy available to students belonging to various disciplines in the university of Bombay. Nanjundappa[10] discussed the structure of university finances in relation to cost and performance. He examined the questions of costs of higher education and fees and pleaded for bringing about a closer alignment between the two.

The Association of Indian Universities has brought out two studies about resources for education and costs of university education. The first study[11] deals with the patterns of resource allocation and changes in it over a period of time. It also examines whether such allocations have any bearing on economic indicators. In the second study,[12] the structure and unit costs of different types of universities have been examined. One interesting conclusion of the study is that the administrative and supporting services claim a larger proportion on the operating budgets of the universities than the teaching costs.

The Institute of Applied Manpower Research has completed three studies (1964, 1972 and 1975)[13] about the pattern of expenditure relating to the Indian Institutes of Technology. In another study[14] (1979), the pattern of expenditure in engineering colleges and polytechnics has been examined. The study discovered substantial variations in the pattern of per student expenditure among the responding colleges and polytechnics.

The Indian Council of Social Science Research sponsored a comprehensive study in 1978 about the financing of social science research in India. The intention of the study was to quantify the financial inputs for social science research, to identify the sources of finance and to find out the extent of collaboration and coordination among the various bodies financing and/or sponsoring research in social sciences. The study has brought out very interesting facts about research in social sciences.[15]

Under category (ii) mention may be made of Misra's studies (1959, 1962, 1967)[16] on educational finances in India which give many historical details about the system of educational finance that existed in ancient India, during the British period and the early years of post-independence period. Nair and Pillai (1962)[17] focussed their attention on the financing of education in Kerala. Naik and Lawler (1965)[18] studied the problems of financing of elementary education. Kamat, Azad and Panchmukhi (1978)[19] discuss some aspects of financing of higher education in the post-independence period. They have highlighted the financial crisis in higher education.

Problems of financing of higher education in less developed countries were studied by Rizvi (1960).[20] The study by the present author about the financing of higher education in independent India (1975)[21] sought to analyse the behaviour of high education finance—aggregative as well as institutional—during the post-independence period. He also discussed certain basic policy issues pertaining to financing of higher education in the country. In his second study[22] (1975), a macro-analysis was made of patterns, procedures and policies of government grants to institutions of higher education. In another study[23], the author examined the problems of financing of higher education and research at an all India level.

There are very few studies on costs of various educational programmes. At the international level, Coombs and Hallak (1972)[24] carried out a comparative study on management of educational costs with particular emphasis on questions like the behaviour of educational costs in different countries and the measures of reducing costs. Similar studies were carried out under the auspices of OECD (1972)[25]. In India, Lakdawala and Shah (1978)[26] carried out a study on optimum utilisation of educational expenditure in Gujarat State. The study aimed at exploring the possibilities of bringing about economies in educational expenditure as also at ensuring its optimum utilisation.

The state grant-in-aid system, which has grown in size and complexity since 1854, when it was introduced in the country by the British rulers of India, has also received inadequate attention. In Independent India, this has been the main procedure of financing at all stages. Among the very few studies on the subject, mention may be made of the study by Naik (1965),[27] who made an analysis of rules relating to grant-in-aid to colleges of arts and science and secondary schools. Misra[28] also made an analysis of the grant-in aid system in vogue in the various states in India. As already stated, the problem of grant-in-aid in higher education has also been studied by the present author (1975) with special reference to patterns, procedures and policies of state grants. This was, however, a macro type of analysis.

The problem of returns from education has been studied by quite a few researchers.[29] The findings of these researches are however, not strictly comparable because each one of these studies is based on different assumptions and procedures of computation. One interesting finding of these studies is that returns from primary education are higher than those from college education and hence there is a case for diversion of resources from college education to lower levels of education.[30]

Summing Up

The preceding analysis of the research studies in educational finance undertaken in India brings to focus the following points :

(i) The total quantum of research effort is rather inadequate for a country of India's dimensions. To bring about this sordid state of affairs, the universities have made no mean contribution. If about 180 universities, (including institutions deemed to be universities and institution of national importance) were able to produce only three doctorates on the subject of educational finance during a period of about two years, the inadequacy of research effort in this important field of study can be very well appreciated. Even if we take into account the researches sponsored by the specialised agencies like the Indian Council of Social Science Research, University Grants Commission, etc., the total research output is rather disappointing.

(ii) The inadequacy of research effort is further compounded by the almost absence of researches in certain essential areas of educational finance. For example, studies on unit costs, educational cost indices, private costs and social costs have been almost conspicuous by their absence. The system of state grants to various types of institutions has also received inadequate attention. This indicates somewhat lack of planning in the formulation of research proposals in the university institutions.

(iii) It has also been observed that the bulk of the studies are at the macro level. Except for a few studies of university finances sponsored by the Indian Council of Social Science Research, most of the studies relate to the all India level. For obvious reasons, it is difficult to apply the findings of these studies to micro-level situations.

(iv) It has also been found that quite a few of these studies are historical and descriptive in character. Without denying the need for such studies, it is necessary that studies of a more analytical nature should be taken up.

(v) In the studies of educational finance, the analysis has been primarily limited to developmental expenditure i.e. the outlays included in the successive five year plans. The non-plan expenditures, which constitute about 80 to 90% of the total educational expenditures have been left outside the purview of most of the studies. Obviously, this analysis of the educational expenditures only tells a partial story and hence has a limited utility.

PART II

Research Needs in the Area of Educational Finances

Before making suggestions about the research needs in the area of educational finance, it would be pertinent to delineate, broadly, the general themes of such studies and to outline basic questions of policy that such investigations might seek to examine.

Research Themes

Studies in educational finance should be directed towards examining questions like the quantum of total resources available for education and their intersectoral allocations; patterns and procedures of government grants, identification and mobilisation of resources for education with reference to the national economy; costs of, and returns from, education, internal and external efficiency of the educational system, etc , specific problems of financing university education, secondary education and elementary education could also be examined.

Suggested Studies

Keeping in view, the broad questions of policy indicated above and the type of researches conducted in India so far, an attempt is made to suggest some of the important areas of research relating to educational finance. The recommended studies are, however, illustrative in character and are in no way exhaustive. Further, no attempt has been made to draw up a list of research priorities, because these will emerge in relation to the needs of the particular areas/institutions for which these studies are undertaken. Further, because of the inter-connected nature of these concepts, some overlap is unavoidable.

1. Growth of Public Expenditure on Education

The study could be undertaken in an historical perspective. The allocations for education both for maintenance and development may be studied in relation to the growth of national income, demographic expansion, the priority accorded to education in relation to the total plan outlays, the growth of expenditure in relation to the expansion in enrolment at various stages, etc. Studies under this head could be multi-dimensional in that the analyses could be aggregative i.e. for India as a whole or disaggregative i.e state-wise, region-wise, etc. Within education, it could be sector-wise i.e. for elementary, secondary and higher education, etc.

Another problem that could be studied in relation to public expenditure on education is the mechanism of allotment of resources for education. An important aspect to be studied would be to what extent political, social and economic factors influence the decision-making authorities.

2. Budgetary Allocations

Education has been the most vulnerable sector so far as budget allocations are concerned. The impact of the cuts made at the central and state levels on educational growth and efficiency needs to be studied.

It has also been found that even after sectoral allocations have been determined under the five year plans, there are large and frequent diversions from one sector to the other. The worst 'sufferer' in this regard is the elementary education sector. The causation of these monetary diversions and their impact on the quantitative and qualitative development of this sector needs to be studied.

3. Resources for Education

The changing pattern of educational resources like government—central and states, fees, private benefactions, etc., could be studied. The element of subsidy at different levels of education could be worked out. The measures for accelerating private resources for education could also be identified. Studies could be undertaken for mobilising private resources for education, that is, private donations and student fees. The manner in which industrial and commercial houses could contribute to education may also be subjected to an analytical review.

4. Non-Monetary Inputs

Given the scarcity of resources for education, accent should be laid on studying the optimum utilisation of academic and other physical facilities. This would necessitate studying school curriculum, working hours, school buildings/equipment utilisation; faculty arrangement in order to ensure better returns from the existing facilities, etc. Participatory management techniques involving the teachers and the students alike, development of a relevant academic ethos, opportunities for learning by doing and appropriate consideration to the problems of first generation learners are some of the other dimensions of the non-monetary inputs, which could be subjected to thorough investigation.

5. Costs of Education

The costs of education lend themselves to a three dimensional analysis :

(a) Social Costs

Since education has a long gestation period, its returns are available only after the lapse of a defined period. Further, the society has a stake in education because it also gains through the academic and professional capabilities of the educated personnel. So education is an investment activity, which benefits the society as much, if not more, as it benefits the individual. The problems to be studied are : how much the society spends on education and how much it benefits from the enhanced productivity of the educated persons. The social costs and returns could be studied separately for various stages of education.

(b) Institutional Costs

It may be worthwhile making in-depth studies of costs pertaining to the establishment and maintenance of institutions of verious types located in different regions. For example, the expenditure mix of elementary schools, secondary schools : public, private, recognised and aided, un-aided etc., may be studied.

The incomes and expenditures of various types of universities—central, states, institutions deemed to be universities, institutions of national importance etc., could be subjected to a critical review. The incidence and quantum of recurring deficits of the university institutions may also be analysed. The manner in which the university institutions manage to survive in spite of these deficits would also lend itself to interesting investigations Similar studies could be extended to colleges categorised from different stand points like (a) Management : Government, private, aided, unaided (b) Courses offered : Colleges of general education, professional education, special education, and (c) Location : rural, urban or semi-urban areas.

(c) Private Costs

The private costs of education have to be studied in a systematic way. One of the reasons for dropouts at the different stages of education is the apparent inability of the parents to finance the education of their wards. The magnitude of the opportunity costs to various groups of student population have also to be studied. This is important not only for being better informed about the burden on the students and their parents but also from the point of view of determining the policies of government financing of the educational system, including the policy about the award of freeships, scholarships, fellowships, etc.

6. Educational Cost Indices

No significant attempt has been made to work out educational cost-indices. According to common knowledge, the educational expenditure by government has increased manifold. From about Rs. 900 million in 1950-51, it is in the realm of about Rs. 80,000 million. How much of this has been rendered ineffective by the ever increasing costs of the educational apparatus needs to be studied. These studies could be done separately for different stages of education because of the variations in the expenditure 'mix' at different stages.

7. Relationship Between Investment in Education and Economic Growth

This can be done statewise/areawise. The first step would to calculate indices of enrolment by giving appropriate weightages to different stages of education per 100 of population and the state per capita income over the years. Correlation coefficients could be worked out between enrolment at different stages of education end economic growth for different years. This would, however, necessitate neutralising the effect of other factors like health, recreation, housing etc., on economic development.

8. Cost-Benefit Analyses

This is a related problem. The studies under this head would involve analysing the contribution that education makes to the individual and social development in terms of the financial inputs. The intention would be to maximise the individual and social returns from educational investment.

9. Socio-Economic Studies

Very few studies have been made about the socio-economic background of the students of different categories in educational institutions. The parental income, the size of the family and the number of dependents, particularly school and college going children, the per capita income in the family, the living conditions of students and a host of similar problems need to be studied systematically in order to have a clear idea about the financial problems that the students belonging to different socio-economic and cultural groups face.

10. Utilisation of Educational Infrastructure

Studies relating to the extent of utilisation of the educational facilities need to be undertaken. It has been found that the infrastucture in education is not optimally utilised. The result is that while at one place there is a surfeit of educational facilities, most of which are not adequantely utilised, at some other places in the vicinity, even the minimum facilities are not available. These studies, done on a regional basis, will throw much light on the utilisation of the existing facilities and will help in determining the extent to which the policies of educational expansion can be modified.

11. Systems of Assistance from the Government

This is another important area of investigation under which a number of studies could be undertaken. The patterns and procedures of state assistance for the maintenance and development of institutions could be analysed in an historical perspective. The studies could also be directed towards focussing the bureaucratic idiocyncracies in the sanctioning and release of state grants.

The following questions could be examined :

(i) how far the State Grants have a policy orientation about educational development;
(ii) how far the state (or central) grant-in-aid rules are unambiguous or liable to multiple interpretations;
(iii) how far the state grants are adequate to meet the rising needs of educational institutions; and
(iv) how far the state grants encourage innovations by the educational institutions, etc.

Conclusion

The discussion may be brought to a close by reiterating that research effort in educational finance is inadequate quantitatively, lacks planned effort and is far from comprehensive. There is a vast expanse of virgin lands which have escaped the attention of researchers. The university departments of education have, so far, not been able to make any worthwhile dent in this important field of investigation. It is therefore, necessary that they should shed their indifference, which is born mainly out of traditionalism and in some cases, lack of capability to adapt themselves to the fast changing needs of research. The newly emerging areas of research offer a challenge to the academics and intellectuals of our country and it is hoped that they will not be found wanting in meeting the challenge more than half way.

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Convocation

Be Proud to Be a Woman

"A woman should be proud to be a woman, not apologetic It is time that they made society realise the fact that a woman is not a piece of transferable property among men by her father, husband or sons. They shouid realise that it is possible for women to survive as individuals and can lead their lives independently. Women need not lose their femininity in order to rise above their traditional subservient roles. An intelligent, capable woman can hold herself with dignity and courage in any situation", exhorted the noted journalist Shri Kuldip Nayar. Shri Nayar was addressing the first Convocation of the Kanpur Vidyamandir Mahila Mahavidyalaya, Kanpur. Excerpts

It is heartening to see women doing well at studies and excelling themselves in various professions. Awareness of the importance of good education for girls in itself is a sign of positive social change. However, education does not merely mean being able to read and write or obtain degrees and diplomas. True education is much more than this. It exposes you to influences, enriches and refines sensibility. It also helps develop one's personality. An educated and professionally trained women has access to several careers; she is also likely to make a better wife and mother if she has chosen matrimony as her ultimate objective.

Looking at a glance we see women generally associated with idea of enclosures. It is universally assumed that home is where a woman's heart should be. A man is generally associated with the idea of wider spaces outside home. A woman's escape into the space from the enclosure is often frowned upon. Her return to the enclosure is always approved of. It is an ironical situation.

Domesticity is neither bad nor undesirable in itself but when it becomes compulsive and when it prevents creativity of other kinds, especially in a talented person, then it is questionable. Women who wish to break away from it should have the option open to them. Now, the option is not going to be given to them on a silver platter. They have to strive to obtain it and to hold on to it. An educated woman is the one who exercises her talents and capacities to control her circumstances rather than allow them to control her.

Belonging to womanhood, you carry the burden of the great collective memory of centuries of subjugation plus the responsibility of freeing yourself and the others from it in a constructive way. The idea of a woman as a picture of sacrifice is no longer relevant. We admire those who are intelligent, practical levelheaded and creative. A woman need no longer think that she would find ultimate fulfilment in serving others. If service is the paradigm of femininity, she should let others serve her on an equal basis.

But all this cannot be made to order unless you work towards it. You have to achieve the status that puts you in that position through clear thinking, hard work and a spirit of independence. Of course your responsibility will increase manifold and it will be your job to see that you as well as other women are treated with respect. It would be possible when you are aware of your identity as a person and when you can consciously exploit the fullest potential of your personality. A sensitive woman protests against both idolatry and abuse of women and only her actions can bring hope to others.

What happened in your own city is a country's shame. Three girls of marriageable age committed suicide because they saw little prospect of marriage in a society where woman often goes to the highest bidder. Dowry has not lessened over the years; it has only increased and the ostentatiousness which has come to be attached to weddings—five-star receptions, etc,—has made the scene vulgar and terrifying. But the blame does not lie on women but on the society which has surrendered to the custom, despite legal sanctions against it.

A woman should be proud to be a woman, not apologetic. It is time that they made society realise the fact that a woman is not a piece of transferable property among men by her father, husband or sons. They should realise that it s possible for women to survive as individuals and can lead their lives independently. Women need not lose their femininity in order to rise above their traditional subservient roles. An intelligent, capable woman can hold herself with dignity and courage in any situation. This is the lesson to be drawn from the Kanpur happenings; not a pall of disappointment and fear that has been hanging over many homes.

The immediate need of the hour for women is freedom. It is not only from decadant, meaningless customs and superstitious believes but also from dependence and bondage of all kinds. There is a need to cultivate a rational approach towards life and towards the problems of survival in a world full of horrors—dowry deaths, sati, denial of secular justice to women, amniocentesis tests and female infanticide. It is necessary to make a lot of noise about social injustice based on gender. It is also essential to protest in an organised and consistent manner. But mere protests are not enough for justice is to be demanded, obtained and maintained.

In the name of "this is tradition" many evils are sanctified. A particular behaviour is expected and insisted upon. But tradition is not something frozen. It undergoes changes from generation to generation. In the Hindu mythology, it has happened again and again. In Shakutalam, Dushyanta married Shakuntala in Kanvar's hermitage. That was a gadharva marriage which does not require any rituals or ceremony. Will that marriage be accepted legal today even though tradition has it ?

Again, there are various versions of the Ramayana. Sita is submissive in one, assertive in another. In the Buddhist Jataka literature, Ram and Sita are described as brother and sister and they were exiled alongwith Lakshman.

There is nothing sacred about tradition. It is a convenient instrument used by the vested interests to keep the society in bondage. Child marriage, sati, non-marriage of widows—all customs are practised at the instance of men to keep women in subjugation.

During the Vedic period, woman was worshipped and the relics of those days indicate the respect in which they were held. Even now in Rajasthan, among the Rajputs, where sati is glorified, Mirabai lived in the 16th century and she did spend her life serving her husband, let alone giving up her life for him. Mira's songs openly proclaim her determination to undertake a spiritual quest, resisting the opposition of her husband and in-laws.

In one song, she addresses her husband thus : "Ranaji, you cannot stop me now/I love to be among the wise/I throw off the veil of modesty....../Take your necklaces and jewels/I tear and flick your finery/Mira wanders, a mad woman,/Her hair flies free". (Ranaji, Ab na rahoongi tori hatki).

She lived a highly unconventional life, breaking out of seclusion, travelling widely with a following of women, and singing and dancing in temples. In many songs she stresses her defiance of social opinion :

> Mira dances with bells on her feet.
> 'Mira is mad' people say
> 'Destroyer of family' kindred call me

Mira dances with bells on her feet......(Pag ghungroo bandh......)

In one song she even states : "I will sing of Girdhar/I will not be a Sati......(Girdhar gasya Sati na hosya).

One hears a lot about women's liberation movements all over the world. A truly liberated woman does not run down or consider men inferior to her. She considers them equals with whom she can communicate on an equal footing. An ideal society calls for equal opportunities for both men and women. In our country there is need to do a lot towards this goal. A happy society is where (a) women enjoy financial independence and opportunities of work in their chosen spheres; (b) there is no fear of derision, humiliation and molestation just because they are women; (c) there is no need for separate queues and reserved seats for women; (d) mother's name is given equal importance to father's in legal/official papers; (e) women are not included in the minorities and weaker sections of society; and (f) women are considered persons and not commodities.

Cynicism or pessimism towards the prevalent conditions is not the right attitude. A beginning has already been made in the form of awareness of their rights among women in India. It is for young women like you to carry the task ahead.

"We seemed to be helpless in the grip of some all-powerful monster; our limbs were paralysed, our minds deadened. The dominant impulse in India was that of fear pervasive, oppressing, straling fear; fearof the army, the police, the widespread secret service, fear of the official class; fear of laws to suppress and of prison," this is what Jawaharlal Nehru said, while describing India under British domination.

I am reminded of a novel "The House on the Embankment" which stirred wide attention in the Soviet Union. The theme was that passiveness paved off. The author, Yuri Trifonov, narrated the story of Glebov, the central figure, who by avoiding firm stands on important issues goes higher in the life and stays out of trouble.

"His gift was to be nobody", says an acquaintance of Glebov. "As I realised later, people who have the genius to be nobody go very far...... are always successful."

How true it is in today's world. If the lives of successful men and women were to be found that most of them belonged to the tribe which knew how to get along. They never came in others' way; they never walked out of step; they never made any thing an issue Their preference was to keep quiet and if at all they spoke, they were seldom out of tune. Some would criticise them for playing it safe but from any standard they were successful and climbed the ladder higher and higher.

Indeed, success has become synonymous with passiveness. If you know how to get along, you advance in life. If you donot accept any responsibility, if you do not take risks, if you just lie low, you read the maximum crop. And people even come round to believe that you must be possessing some talent.

Take the civil servant. Those who take no decisions can make no mistakes. They may only push the file with their "dhobi mark" to use the bureaucrats, lingo, but they invariably go places. You may say that they lack initiative, but how does it bother them ? They get their annual increments and even out of turn promotions. What else do they want from life?

No doubt, all that they do is to discuss the pros and cons of a case, record a note which summarises both sides and leave the rest to their superiors. They know from their experience that it never pays to express their opinion. Why take in any risks in expressing an opinion or taking a decision if you can safely "pass the buck" ? It may mean slowing down the decision-making process or stalling some programmes which could have been expedited. But that is not their concern if they can stay out of trouble. Why should they stick their neck out ?

Intellectuals are no better. Conformism has become the badge of their community. They rationalise every happening in their life. Independent thinking is only a make-believe behind which they indulge their lives of security and good living. The rule "I sing the song of him whose bread I eat" sums up their philosophy. They would do anything to retain all that they have—and their comforts. It is not that they do not appreciate the value of sacrifice or suffering for one's convictions but it is a precept which they want others to follow.

Whether they believe in anything at all is difficult to say. But they do give the impression of people who are interested in themselves primarily. In the words of a philosopher, "No doubt, when modesty was made a virtue, it was a very advantageous thing for the fools, for everybody is expected to speak of himself as if he were one".

They may talk of values—and they endlessly talk of principles and ideals—but it is the material rewards that they are after. But then their great gift, as Yuri Trifonov says in his novel, is to be nobody. Since this has paid them so far, why should they change ? ☐

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The Indian Council of Medical Research has instituted a limited number of 'RESEARCH CAREER DEVELOPMENT AWARDS" from the year 1988-89 to provide young talented Scientists/Scholars with an opportunity to pursue their research interests in any institution in India, including the ICMR's own institutes. The basic eligibility criteria are :

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(v) The last date for receipt of completed applications has been extended to **31st July, 1988**.

Those who have applied in response to the earlier advertisement need not apply again. It may, however, be noted that the minimum duration for the Research Career Development Award will be one year (and not three years as indicated in RCDA forms supplied earlier). All other terms and conditions will remain the same.

Further details can be obtained from the Director General, Indian Council of Medical Research, (Division of Administration-III), Ansari Nagar, Post Box 4508, New Delhi-110029.

Imphal Seminar on Monitoring & Implementation of NEP

The Association of Indian Universities is organising a series of seminars in the various regions of the country to consider the monitoring and implementation of the National Education Policy (NEP) and its Programme of Action. Vice-Chancellors, Deans and Principals from Universities are participating in these seminars.

The first such seminar was organised at Delhi from 14th to 16th April, 1988. It was reported in the **University News**, April 25 issue.

The second seminar was organised at Imphal from 19th to 21st May, 1988. Twenty seven participants from 14 universities including 9 Vice-Chancellors participated. The themes discussed at the Seminar were: Making the University System Work; Improvement in Efficiency; Mobility of Teachers and Students; and Language, Development and Cultural Perspective. The Conference was inaugurated by the Hon'ble Chief Minister of Manipur, Shri R.K. Joychander Singh. Prof. K.J. Mahale, Vice-Chancellor, Manipur University presided. Prof. S.K. Agrawala, Secretary of the Association of Indian Universities introduced the themes of the Seminar to the participants. Dr. V. Natarajan, Director (Research) in the Association, introduced the Keynote speakers Prof. B. Chatterjee, Vice-Chancellor, Rabindra Bharati University, Prof. Ramaranjan Mukherji, ex-Vice-Chancellor, Burdwan and Rabindra Bharati Universities, Prof. S.P. Banerjee, Vice-Chancellor, Burdwan University and Shri G.B.K. Hooja, ex-Vice-Chancellor, Gurukula Kangri Vishwavidyalaya and ex-Chairman, Manipur Public Service Commission

The Chief Minister emphasised that every country develops its own system of education to express and promote its unique socio-cultural identity and also to meet the challenges of the time. India has been no exception to it. In order to achieve the desired objectives, the Education Policy of 1986 has suggested removal of disparities, reorganisation of education at different stages, technical and management education, reorienting the content and pedagogy of education, teachers' education and the management of education, as the key areas requiring maximum attention. He mentioned that in the State of Manipur, they have taken up the implementation of the policy in right earnest. The important features of such efforts were: rationalising the school education system; delinking pre-university classes from degree colleges; vocationalisation in selected higher secondary schools; setting up a secondary model in each district; introducing new syllabi in the school classes; supply of free exercise books to students studying from classes 1 to 8; free supply of uniforms to girl students belonging to SC and ST classes, etc.

The themes of the seminar were discussed in four separate groups and consensus arrived at on several points like :

(1) In the university system, the responsibility of all the functionaries should be clearly defined so that specific persons can be held responsible for specific lapses.

(2) With this objective, some specifically defined responsibilities for all the important university functionaries have been suggested. Similarly, minimum responsibilities of the teachers and students have also been spelled out as well as those of the Govt Departments and administrators.

(3) The seminar emphasised that in case the Govt. does not meet its minimum commitments, as procedurally determined, in respect of finances and infrastructure facilities, the college and university system just cannot function.

(4) Norms of teacher evaluation have also been suggested.

(5) Minimum student facilities relating to accommodation, sports, cultural and recreational activities, co-curricular and extra-curricular and extension activities, health facilities, etc. have been spelled out with due emphasis on student counselling.

(6) The basic components of the machinery for the removal of grievances of the teachers, students and employees have also been suggested.

(7) Modalities for student participation for making the system work have also been suggested.

Specific recommendations have also been laid down with respect to the other themes relating to the 'mobility of teachers and students'; 'Improvement in efficiency' in the university and college systems and'; 'Language Development and Cultural Perspective'.

This is the second in the series of seminars in which senior academics participated for 3 days to deliberate on specific steps for implementation of the programme of action and monitoring the progress of the implementation of the National Education Policy. The deliberations were a great success when viewed in the light of consensus reached on several crucial issues. The reports of all these seminars shall eventually be considered by the Govt of India, Ministry of Human Resource Development, which is financing these seminars. ☐

Education for Women's Equality

Mother Teresa Women's University, Kodaikanal organised a Principals' Meet on Implementation of New Education Policy with special reference to education for women's equality on 28.5.1988 at the University's Research and Extension Centre at Madras. The Vice-Chancellor, Dr. J.K. Pillai, presided.

Dr. Mary Josephine Louis, Professor and Head of the Department of Education, Mother Teresa Women's University, welcomed the gathering and spelt out the objectives as identifying areas of Women's Studies that could be incorporated into the curriculum, areas of Research and Extension work, activities that would promote building up a positive image and inculcate critical thinking. Dr. J.K. Pillai in her presidential address emphasised the role of Education in the liberation of women from the subservient position occupied by them, with a few illustrations and appealed to Principals to stimulate teachers in their colleges towards substantial changes that ought to occur in higher education towards women's equality.

Mrs. Sarojini Varadappan, President, All India Women's Conference, Madras and a member of the National Committee for Women's Development, appraised the group of the National efforts for the development of women. She promised to carry the recommendations of the Principals' Meet to the National Meet and ensure their implementation.

The Principals' Meet resolved that :

— women dimensions be incorporated in different disciplines, first in autonomous Colleges and later to be taken up by the Boards of Studies of the various Universities;

— a Women's Cell be instituted in all Women's colleges with the assistance of the UGC and the Cell take up studies in women related topics and organise Seminars, Workshops on women's issues;

— discretion be given to Principals of Women's Colleges to take up activities related to Women's Development in their NSS Programmes;

— during the year 1988-'89, the Women's Colleges in Tamil Nadu to take up women's issues as their central theme of co-curricular activities ;

— self employment dimensions be included in various courses. The modalities would include career information services, lectures by successful role-models from industries, government and other organisations;

— training courses be organised during summer holidays to make girls employable;

— women's Colleges should encourage physical education activities, and girls interested in sports activities should be given special encouragement and training;

— women's colleges to give special attention to the eradication of illiteracy among women, through the package programmes as formulated by the UGC guidelines—Adult Education Centres, Jana Siksha Nilayams, Non-Formal Education Centres;

— leadership training programmes be organised for girls with the help of Voluntary Organisations and Youth Welfare Departments;

— more girls be inspired and encouraged to sit for the competitive examinations; special training courses be offered with the help of the UGC;

— women teachers develop competence on par with men teachers and to this end, staff development programmes be organised by the colleges. Women teachers should be encouraged to attend Seminars/Workshops organised by National Agencies like NIEPA, NCERT, UGC, ICSSR, etc;

— to enable women teachers to update their knowledge and skills, they should be given training in time-management, reducing durdgery in home management, innovations in child-rearing practices, in simplification of their task and in changing their food habits;

— to appeal to the Government to provide some percentage reservation for women in important decision-making bodies such as Planning Commission;

Dr. B. Regina Papa, Registrar, Mother Teresa Women's University, who proposed a vote of thanks suggested forming a network of Women's Cells in all colleges to be monitored by Mother Teresa Women's University.

Syllabus Design & the Teachers' Role

A Workshop for the college teachers on Syllabus design and the teachers' role in converting the given syllabus into practical courses was organised by the Central Institute for English and Foreign Languages' Regional Centre, Shillong in collaboration with the Department of English, North-Eastern Hill University and the Directorate of Public Instruction, Government of Meghalaya.

The five-day workshop had before it the following tasks :

(i) Critically examining the proposals given in the Document : National Policy of Education, 1986, Programme of Action, Government of India, Department of Education, New Delhi.
(ii) Analysing the rationale underlying the Meghalaya English curriculum of the undergraduate level.
(iii) Planning long-term and short-term courses based on the given Syllabus.
(iv) Investigating the practical problems faced by the teachers of English in Meghalaya.

In discussing the U.G.C. proposals for improvement of the language competencies of students, the participants agreed that emphasis should be shifted from book learning to developing language skills, study skills, cognitive strategies for interpreting texts and discovery learning. The participants also agreed that streaming on the basis of merit and the specific needs of the students would help solve the problems of handling a large mixed ability group of students. The need for investigating the level of proficiency of the students in English and evaluating the learning outcome was also greatly felt by the participants.

A framework for analysing the Meghalaya English curriculum was developed to facilitate assessment of its merits and weaknesses. The analysis indicated that the principle of streaming had been adopted in principle in Meghalaya as different English syllabi have been recommended respectively for the B.A., B. Com., B.Sc., and Home Science students. However, a detached analysis suggests that these syllabi are not need based as there is a lot of overlap in the topics and teaching items included in these syllabi. It was also felt that the language papers in the syllabi are not properly graded and sequenced on a hierarchical basis from the P.U. to B.A. Compulsory/Elective/Honours, B.Sc. and B.Com. levels.

The participants also felt that the majority of the college teachers have no say in designing the syllabus. It was suggested that the only way in which the teachers can actively participate in planning and re-orientation in teaching is by developing practical courses based on the given syllabus. The workshop provided opportunities for training in long-term planning of courses to facilitate the process.

On the concluding day a number of college teachers demonstrated some of the innovative methods they have used so far in their classes. These demonstrations as well as the innovative methods indicated that the carefully preserved opinions in some quarters, that college teachers on the main are inimical to changes and are allergic to innovative exercises, was a myth.

University Information & Library Networking System

The University Grants Commission (UGC) has constituted a Committee under the Chairmanship of Prof. Yash Pal, Chairman, UGC to work out the details regarding University Information & Library Networking System (UNIFLIB-NETS). The Committee at its first meeting held on 22nd April, 1988 decided to set up a working group consisting of librarians, Information Specialists, Computer Software Specialists, Tele-Communication Specialists and others. The working group has been asked to submit a Detailed Project Report within next 3 months indicating necessary details alongwith the estimated cost of the project.

The working group has prepared a questionnaire on "Survey of the University Libraries" which has been sent to all the Vice-Chancellors of the Universities in India with a copy to the concerned university librarian. At its first meeting on 25th May, 1988, the working group decided, inter-alia, that Library/Bibliography Automation may be done in respect of one University in the first instance. The University of Poona, Pune and the Jawaharlal Nehru University, New Delhi are being considered for the purpose. Filled in questionnaires and any other suggestion that may be helpful to the working group may be sent to Shri K. Gunasekaran, Education Officer, University Grants Commission, Bahadur Shah Zafar Marg, New Delhi-110002.

SPU Develops a Teaching AID

The University Science and Instrumentation Centre (USIC) attached to the Sardar Patel University, Vallabh Vidyanagar, has developed a teaching aid based on analytical: (a) X-ray diffraction, and (b) Electron diffraction which are incorporated in B.Sc. as well as M.Sc. syllabi of the science colleges of Gujarat State. The cost of each teaching aid will be about Rs. 250/- Further details can be had from the Head, USIC, Sardar Patel

University, Vallabh Vidyanagar-388 120 (Gujarat).

New Professional Courses

The Sardar Patel University proposes to offer a 2-year M.Sc. Electronics course and a 2-year Postgraduate course in Computer (M.Sc. Computer) from the academic year 1988-89.

Refresher Course in Mathematics

The Academic Staff College, Bihar University, Muzaffarpur, organised a Refresher Course in Mathematics for College Lecturers from 18 April to 7 May, 1988. This was a need-based course with the broad objectives of equipping the participants to effectively cope with the core contents of Bachelor level syllabus, which has been drastically modernised with the introduction of 3 year degree course in the Universities of Bihar. The lecturers working in the constituent/affiliated colleges of the Bihar University and the L.N. Mithila University, Darbhanga constituted the target group—26-from Bihar University and 11 from L.N. Mithila University. The Head of the Deptt. of Mathematics was Course Coordinator and the teachers of the Postgraduate Deptt and some teachers from outside acted as Resource Persons.

Since the universities of Bihar do not have at the moment new entrants, appointed on regular basis, in the Deptt/Colleges, the U.G.C. had desired the Bihar University Academic Staff College to conduct such a need-based refresher course in place of the usual orientation courses that are being organised by other A.S.Cs. It is proposed to conduct such refresher courses in other subjects also.

Environmentalists Meet

The 9th Annual Session of the Academy of Environmental Biology, India will be held at Valvada, District Bulsar, Gujarat from 29th to 31st December, 1988. A symposium on "Environmental Risk Assessment and Management" will be organised on the occasion. The main objective of the session will be to share the scientific knowledge and also to work out how best the common men should work for conserving and sustaining the cleaner environment.

Further details can be had from Dr. P.B. Deshmukh, General Manager and Study Director, Jai Research Foundation, P.O. Valvada: 396 108, District Bulsar, Gujarat.

Youth and Nationalism

Quoting Benjamin Disraeli that almost everything that was great, had been done by youth, Mrs. Kumudben Joshi, Governor of Andhra Pradesh, called upon the students to dedicate themsleves to the tasks of reiterating and restoring the unity and strength of the nation. Mrs. Joshi was speaking on Youth and Nationalism at the Goa University.

Stating that India's freedom was result of youth struggle on a national scale, Mrs. Joshi exhorted the students to usher in peace and goodwill amongst students in universities by creating proper environment. She called upon students to rise above the narrow regimentations and disruptive forces of casteism, communalism, parochialism, distorted linguism, sectarianism and disruptive regionalism, which were shaking the foundation of our society.

She observed that university was an opportunity to students to formulate and imbibe a national character, dignity, honour and aspirations to achieve national progress. She said it was for the youth to destroy the 'poverty trap' and take up the initiative to provide a direction to the millions in the country's villages, shrouded in ignorance, superstition and tradition, and eradicate the evils of dowry, casteism, communalism and drug addiction.

Dr. Gopal Singh, Governor of Goa and the Chancellor of the Goa University, stressed the need to discard obstructive mental hangups and bring about a social revolution to build the nation.

Diploma in Instrumentation

The Gauhati University has decided to introduce Diploma Course in Instrumentation in the Department of University Services and Instrumentation Centre (USIC). The Diploma Course, which is endorsed by the UGC, will cater to the needs of the technicians of the entire North-Eastern Region of the country.

JNU-IGNOU to Produce Video Software

The Jawaharlal Nehru University and Indira Gandhi National Open University (IGNOU) have joined hands in the production of educational video and audio software for the upliftment of national educattional standards. An agreement has been signed between the two universities for making available video and audio studios at JNU to Indira Gandhi University for educational video software production.

During May 1988, three video and two audio programmes were recorded. The video programmes titled "Writing for the Children", "Unit Design for Distant Learning" and "Management" were directed by Miss Vibha Sharma, Mr. Yusaf Mehta and Miss Zeba Khan. The JNU team headed by Engineer V.K. Sahni, Maintenance Engineer, Language Lab Complex is working in close cooperation with IGNOU team to produce excellent quality educational software. Possibilities are also being explored for the development of software of common interest to both the Universities.

News from Agril. Varsities

Parmar Varsity Dedicated to the Nation

The Prime Minister of India, Shri Rajiv Gandhi, dedicated the Dr. Y.S. Parmar University of Horticulture and Forestry, Solan to the Nation on 30th April, 1988 in a formal ceremony at the University Campus, Nauni (Solan), In his address the Prime Minister said that this was the first University of its kind in Asia and second in the entire world, which would help transform Himachal Pradesh into a prosperous state. He said that the Union Govt. would give special aid for the development of horticulture, food processing industries and assured full assistance and cooperation to the University in the field of research and extension education.

Mr. Gandhi commended the achievements of the State in the field of horticulture and said that the University at Solan would benefit the farmers and orchardists by disseminating the latest knowledge in the field of horticulture and forestry.

Mr. Gandhi planted a sapling of 'Khirk' (Nettle wood) which is a local fodder tree and is used for fuel and fodder. He also released a book "Production and Conservation of Forests" written by Dr. P.K. Khosla, Dr. D.K. Khurana and Mr. Atul of the University. A book "Apple Production Technology and Economics" authored by Mr. S.M. Kanwar, the Agricultural Production Commissioner of the State was also presented to Mr. Gandhi. University publications were presented to Mr. Gandhi by Dr. M.R. Thakur, Vice-Chancellor of the University.

Shri Virbhadhra Singh, Chief Minister of the State said that this University would also serve the twin purpose of preservation of eco-system and environment in the state.

Dr. M R. Thakur, Vice-Chancellor of the University said that since the State Government was wedded to conserve and preserve the ecology, environment and natural resources of the State and to alleviate the poverty of its people through its various policies and programmes, the University will provide necessary technology to harness the available potential. Dr. Thakur assured that University will serve the cause of hill horticulture and forest farming in the best possible manner.

Summer Institute on Buffaloes

In the Indian context, scientists should specially look into particular problems and constraints of buffalo production and management at the level of the small farmers who own nearly 80% of the buffaloes of the country, said Dr. Har Swarup Singh, Vice-Chancellor Haryana Agri. University, Hisar (HAU). He was inaugurating a Summer Institute on Optimisation of Buffalo Production through Management organised at the College of Animal Sciences.

Dr. Singh disclosed that since 1972 buffalo numbers have increased by nearly 3.5% in Haryana despite the fact that an estimated 50,000 high yielding buffaloes are being exported from the State to other States of the country and abroad.

He called upon the scientists to draw up a comprehensive and integrated buffalo development programme with regard to traditional problems of buffalo production like high calf mortality, late maturity, summer depression of mortality, etc.

The Summer Institute was presided over by Dr. R. Nagarcenkar, Director, National Dairy Research Institute, Karnal. He lauded multidisciplinary integrated research at the buffalo research centre at HAU which has established a nucleus of elite murah buffallo germ-plasm for genetic improvement of this world famous breed.

About 30 scientists attended the Summer Institute organised by the Department of Livestock and Management.

Castor Sheller

The Tamil Nadu Agricultural University (TNAU) has developed and evaluated a hand/power operated castor sheller. It consists of a trapezoidal feed hopper with a shutter to regulate the feed rate, shelling discs and a screw auger to convey the castor pods in between shelling discs. The shelling discs are made of two wooden discs fastened with 6 mm thick rubber sheet. One of the discs is rigidly fixed to the frame and the other is mounted on the rotating shaft. The clearance between the discs is adjustable and the rotating discs is held against the stationary disc by means of a compression spring. A fly wheel is provided for easy operation. A blower is fitted to clean the shelled castor. The unit can be either operated manually without connecting the blower or operated by a 0.5 hp electric motor with blower.

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertations as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

CURRENT DOCUMENTATION IN EDUCATION

A List of Select Articles culled from periodicals received in the AIU Library during May, 1988

EDUCATIONAL PHILOSOPHY

Das, R.C. Education in values. *J. Indian Edn.* 13(4), 1987, 37-42.

Fincher, Cameron. Knowledge, competence, and understanding as educational outcomes. *Res. Hr. Edn.* 27(3), 1987, 283-8.

EDUCATIONAL PSYCHOLOGY

Tripathy, P.K. Curriculum development and testing : Piagetian approach. *J. Indian Edn.* 13(4), 1987, 24-7.

EDUCATIONAL SOCIOLOGY

Aijaz, Roohi. Correcting educational imbalance of North-Eastern region. *Yojana* 32(7), 1988, 22-24.

Srinivas, M.N. In pursuit of excellence. *Mainstream* 26(30), 1988, 9-11.

EDUCATIONAL PLANNING

CABE REVIEWS New Education Policy. *Yojana,* 32(7), 1988, 12-13, 18.

Khullar, K.K. Diffusion of literacy in 1987. *Yojana* 32(7), 1988. 14-18.

EDUCATIONAL ADMINISTRATION

Cuthbert, Robert E. Quality and management in higher education. *Studies in Hr. Edn.* 13(1), 1988, 59-68.

Eustace, Rowland. The criteria of staff selection : Do they exist ? *Studies Hr. Edn.* 13(1), 1988, 69-88.

Gupta, G.S. Administrative leadership behaviour as related to the organisational climate of colleges affiliated to Rohilkhand University. *Indian Ednl. Rev.* 22(4), 1987, 80-4.

Hurst, Paul. Microcomputer applications in educational management. *Prospects* 17(3), 1987, 431-44.

CURRICULUM

Neuner, Gerhart. General education and subjects of instruction. *Prospects* 17(3), 1987, 333-45.

Sherman, Edward F. The role of religion in school curriculum and textbooks. *Academe* 74(1), 1988, 17-22.

TEACHERS & TEACHING

Barta, Ben-zion. Training of educational staff for the information technology age. *Prospects* 17(3), 1987, 397-406.

Bourai, H.H.A. Educating college teachers. *J. Indian Edn.* 13(4), 1987, 43-7.

Dorsel, Thomas N. External work by faculty : An opportunity and a responsibility. *Hr. Edn. Rev.* 20(2), 1988, 61-4.

Rutherford, Desmond. Performance appraisal : A survey of academic staff opinion. *Studies Hr. Edn.* 13(1), 1988-89-100.

Shears, Arthur E. Developing training skills : A Saudi Arabian modular course. *British J. Ednl. Tech.* 19(2), 1988. 105-113.

EDUCATIONAL RESEARCH

Rudd, Ernest. The evaluation of the quality of research, (1). *Studies Hr. Edn.* 13(1), 1988, 45-57.

Smith, Kerry and Bers, Trudy. Improving alumni survey response rates : An experiment and cost-benefit analysis. *Res. Hr. Edn.* 27(3), 1987, 218-25.

EDUCATIONAL TECHNOLOGY

Friend, Jamesine. Classroom uses of the computer : A retrospective view. *Prospects* 17(3), 1987, 367-78.

Hartley, J.R. The innovation of computer-assisted learning. *British J. Ednl. Tech.* 18(3), 1987, 210-20.

Papagiannis, George J and Milton, Sande. Computer literacy for development : An evolving metaphor. *Prospects* 17(3), 1987, 355-66.

Sewell, Dave F and Rotheray, David R. The application of computers in education. *Prospects* 17(3), 1987, 379-85,

Thorne, Michael. The legacy of the microelectronics education programme. *British J. Ednl. Tech.* 18(3), 1987, 165-181.

EDUCATIONAL EVALUATION

Banta, Trudy W. and others. Estimated student score gain on the act comp. exam : Valid tool for institutional assessment ? *Res. Hr. Edn.* 27(3), 1987, 195-217.

Bradburn, Norman M. The ranking of universities in the United States and its effects on their achievement. *Minerva* 26(1), 1988, 91-100.

Church, Clive H. The qualities of validation. *Studies Hr. Edn.* 13(1), 1988, 27-43.

Moodie, Graeme C. The debates about higher education quality in Britain and the USA. *Studies Hr. Edn.* 13(1), 1988, 5-13.

Pollitt, Christopher. Models of staff appraisal : some political implications. *Hr. Edn. Rev.* 20(2), 1988, 7-16,

Ved Prakash. How to write good multiple choice test items in Chemistry. *Indian Ednl. Rev.* 22(4), 1937,114-25.

ECONOMICS OF EDUCATION

Blume, S.S. and Spaapen, J.B. External assessment and 'Conditional Financing' of research in Dutch Universities. *Minerva* 26(1), 1988, 1-30.

Eicher, Jean-Claude. The costs of the new information technologies in education : What do we know ? *Prospects* 17(3), 1987, 445-58.

SCIENCE EDUCATION

Rajput, J.S. Science for all : Role and competence of teachers. *J. Indian Edn.* 13(4), 1987, 12-17.

VOCATIONAL EDUCATION

Gingras, Yves and Gagnon, Robert. Engineering education and research in Montreal : Social constraints and opportunities. *Minerva* 26(1), 1988, 53-65.

EDUCATIONAL JOURNALISM

Fitzgerald, Jill. Research on revision in writing. *Rev Ednl. Res.* 57(4), 1987, 481-506.

ADULT EDUCATION

Nimbalkar, M.R. Adult education programme in Goa during the period 1978-82 : An evaluation. *Indian Ednl. Rev.* 22(4), 1987, 91-8.

DISTANCE EDUCATION

Rathore, H.C.S. Candid classroom videotapes : Implications for distance education. *J. Indian Edn.* 13(4), 1987, 2-11.

Sharma, R.A. and Yadav, Siya Ram. Cost and academic performance of correspondence education in Indian universities. *Indian Ednl. Rev.* 22(4), 1987, 48-54.

COMPARATIVE & COUNTRY STUDIES

Lenoir, Timothy. A magic bullet : Research for profit and the growth of knowledge in Germany around 1900. *Minerva* 26(1), 1988, 66-88.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities.

BIOLOGICAL SCIENCES

Marine Biology

1. Koya, M.S. Syed Ismail. *Ecobiology of helminth parasites of finfishes and shellfishes of Cochin waters with special reference to digenetic trematodes.* CUST. Dr. A Mohandas, Reader, School of Environmental Studies, Cochin University of Science and Technology, Cochin.

2. Naik, Ulhas Ganesh. *Studies on the plankton and productivity of Kali Estuary and inshore waters of Karwar,* Karnatak Dr. B. Neelakanthan, Chairman, Department of Studies in Marine Biology, Kodibag, Karwar.

3. Suresh, K. *Haematology of some marine and estuarine molluscs of commercial importance.* CUST. Dr. A. Mohandas, Reader, School of Environmental Studies, Cochin University of Science and Technology, Cochin.

Biochemistry

1. Upadhyay, Avinash Ajay. *Certain biochemical aberrations in diabetic polymorphonuclear leukocytes during phagocytosis.* Nagpur. Dr. N. Nath, Reader, Department of Biochemistry, Nagpur University, Nagpur.

Botany

1. Anil Kumar. *Phytosociological and productivity studies of Bhadarwah Forests, Jammu (J & K).* Jammu. Dr. Shashi Kant, Reader, Department of Botany, University of Jammu, Jammu.

2. Antony, Johny. *Microbiological activities in the root region of coconut, Cocos nucifera Linn.* Kerala. Dr. N.P. Jayasankar, Joint Director, Central Plantation Crop Research Institute, Regional Station, Kayamkulam.

3. Datta, Soumana. *A study of pathogenesis of certain nematode diseases of guar, Cyamopsis tetragonoloba L and their control.* Rajasthan. Dr. B. Tiagi, Department of Botany, University of Rajasthan, Jaipur and Dr. P.C. Trivedi, Department of Botany, University of Rajasthan, Jaipur.

4. Deb, Pronoy Ranjan. *Studies on the effect of organic-inorganic amendments on the soil and rhizosphere microflora in relation to the biology and control of soil borne plant pathogen, i.e. S clerotium rolfsii.* NEHU. Dr. B.K. Dutta.

5. Jha, Vidyanath. *Cytochemo-ecological studies of Euryale ferox Salisbury in North Bihar.* Ranchi.

6. Krishnamurthy, R. *Impact of sodium chloride on the metabolism of rice, Oryza sativa L. varieties differing in salt resistance.* Baroda.

7. Lalrawna. *Study on seed mycoflora of rice, Oryza sativa L. grown in Mizoram.* NEHU. Prof. R.R. Mishra, Head, Department of Botany, North Eastern Hill University, Shillong.

8. Lenjewar, Sharad Gangadhar. *Fossil flora of the Deccan intertrappean exposures of India.* Nagpur. Dr. N.R. Yewale, Department of Botany, Institute of Science, Nagpur.

9. Mand, Sangeeta. *Physiological and genetic studies on guar, Cyamopsis retragonoloba rhizobia with particular reference to plasmids.* HAU.

10. Mandal, Wahed Ali. *Studies in monocarpic senescence of some rice cultivars.* Burdwan. Prof Monojit Acharya Choudhuri, Department of Botany, University of Burdwan, Burdwan.

11. Mondal, Tapati. *Physiological and biochemical studies on some naturally occurring edible fungi in the plains of West Bengal.* Calcutta.

12. Niranjana Murthy, H *Cytogenetical studies in Guizotia case, (Coreopsidinae-Compositae).* Karnatak. Dr. S. C. Hirenath, Reader, Department of Studies in Botany, Karnatak University, Dharwad.

13. Padala, Satish. *Studies on selected cyatheaceous fern taxa of Rajasthan.* Rajasthan. Dr. T. N. Bhardwaj, Department of Botany, University of Rajasthan, Jaipur.

14. Rathi, Seema Narendra. *Palynological investigations on some papilionaceous crop plants.* Nagpur. Dr. G. V. Patil, Department of Botany, Institute of Science, Nagpur.

15. Sheikh Maqsood Ahmed. *Studies on the inheritance of qualitative and quantitative characters and resistance to Fusarium wilt caused by Fusarium oxysporum f.sp. lini in linseed, Linum usitatissimum L.* Rajasthan. Dr. S. K. Agarwal, Department of Botany, Govt. College, Kota.

16. Thakre, Rameshchandra Gulabrao. *Induced mutants in blackgram, Vigna mungo (L) Hepper.* Nagpur. Dr. C. R. Bhatia, Nuclear Agriculture Division, Bhaba Atomic Research Centre, Trombay, Bombay.

17. Wankhar, Borabell. *Biology of Centella asiatic (Linn) urb : A medicinally important clonal perennial.* NEHU. Dr. R. S. Tripathi, Prof,, Department of Botany, North Eastern Hill University, Shillong.

Zoology

1. Datta, Gungun. *Morpho-histochemical and autoradiographic studies on the internal reproductive organs of some insects of West Bengal.* Burdwan. Dr. Mahitosh Banerjee, Reader, Department of Zoology, University of Burdwan, Burdwan.

2. Debnath, Gopal Chandra. *Studies on fresh water fishes of Visakhapatnam with special reference to the larvicidal fish Gambusia affinis, Baird and Girard (Osteichthyes : Atheriniformes : Poecilidae).* Andhra.

3. Debnath, Jogendramohan. *Physiological studies on the effect of cyanocobalasin on magur fish, Calrias batrachus.* Calcutta.

4. Gupta, Sushma. *Histozoic and coleozoic myxozoan parasites (Protozoa : Myxozoa, Myzosporea) of freshwater fishes of Northern India.* Panjab.

5. Jain, Nirmala. *Studies on the hepatotoxicity of an organophosphate phosphamidon in Swiss albino mice.* Rajasthan. Dr. Pradeep Bhatnagar, Department of Zoology, University of Rajasthan, Jaipur.

6. Lal, Deepali. *Studies on the efficacy of chitin synthesis inhibitors including the histopathology of peritrophic membrane against Tribolium castaneum and Heliothis armigera.* Rajasthan. Dr. S. C. Saxena, Prof, Department of Zoology, University of Rajasthan, Jaipur.

7. Laxma Reddy, Ramalingam. *Some aspects of the regulation of ovarian function in the rat and bonnet monkey.* Hyderabad. Prof. P. R. K. Reddy, Reader, Department of Life Sciences, University of Hyderabad, Hyderabad.

8. Mehrotra, Vimal. *Studies on seasonal variations on certain haematological parameters in the Indian Camel, Camelus dromedarius and their association with growth rate.* Rajasthan. Dr. M. L. Gupta, Department of Zoology, Dungar College, Bikaner.

9. Purohit, Ashok K. *Antifertility studies of neem plant materials in male rat with special reference to lipid metabolism affecting reproduction.* Rajasthan. Prof. V. P. Dixit, Department of Zoology, University of Rajasthan, Jaipur.

10. Ram Singh. *Ecological, behavioural and biological studies of rodents in Jaipur region and their control.* Rajasthan. Dr. Y. Saxena, 6-A Kalyan Path, Police Memorial Circle, Jaipur.

11. Ramadevi, Kasireddy Ramalakshmi Satya. *Studies on the ghost crab, Ocypoda platytarsis Milne-Edwards, (Crustacea : Bracchyura).* Andhra.

12. Ratna Kumar, Balla Vijaya. *The ultrastructure and functional characterization of the cell types in the epididymis of rhesus monkey, Macaca mulatia.* H.S. Gour. Dr. B S. Setty, Asstt. Director, Division of Endocrinology, Central Drug Research Institute, Lucknow and Dr. A. C. Shipstone, Asstt. Director, Electron Microscope Unit, Central Drug Research Institute, Lucknow.

13. Seshachalam. R. V. *Studies on the metabolism of a few selected amino acids in the silkworm, Bombyx mori L.* Bangalore. Dr. A. R. Kasturi Bai, 46, Vth Main Road, Jayamahal Extension, Bangalore and Dr. R. V. Krishnamoorthy, Assoc. Prof, Department of Zoology, University of Agricultural Sciences, Bangalore.

14. Sharma, Savita. *An investigation on the mode of action of postcoital antifertility agents during implantation stages of pregnancy in rat.* Rajasthan. Dr. Dennis Jacob, Assoc Prof, and Dr. D. K. Vyas, Department of Zoology, University of Rajasthan, Jaipur.

15. Singh, N. Ibotombi. *Structure and behaviour of meiotic prophase chromosomes in Indian silkworms, Antheraea and*

Philosamia species. Manipur. Dr. S. C. Kundu, Department of Life Sciences, Manipur University, Imphal.

16. Surendar Singh. *Survey of insecticides from the aquatic environment and their interaction with microorganisms.* Rajasthan. Dr. Pradeep Bhatnagar, Department of Zoology, University of Rajasthan, Jaipur.

17. Viswanadham, Bammidi. *Studies on littoral bryozoa, Ectoprocta at Visakhapatnam, Bay of Bengal, India.* Andhra.

18. Wadhwa, Vibha. *Investigations on the effects of certain posticide combinations on the urinogenital organs of Basser domesticus L.* Rajasthan. Dr. P. P. Bakre, Department of Zoology, University of Rajasthan, Jaipur.

Agriculture

1. Anbudhurai, R. Ponnin. *Effect of methyl parathion, an organophosphorous insecticide on photosynthetic electron transport.* Madurai.

2. Bandu, Mahabari Mohammed. *Effects of some growth regulators, chemicals and stage of maturity on ripening of bananas, Musa paradisiaca L.* M. P. Agrl. Dr. B. B. Desai, Head, Department of Biochemistry, Mahatma Phule Agricultural University, Rahuri.

3. Chaudhari, Suresh Madhav. *Studies on heterosis, combining ability and correlations in bitter gourd, Momordica charantia L.* MP Agrl. Dr. P. N. Kale, Prof. Department of Horticulture, Mahatma Phule Agricultural University, Rahuri.

4. Dabas, Dharam Singh. *Studies on molybdenum availability in Haryana soils.* HAU.

5. Foning, Mikthuk S. *Studies on flower and seed production in some winter annuals.* Calcutta.

6. Ganga Krishan, A. *Genetic analysis of cytoplasmic systems in grain sorghum, Sorghum, bicolor (L) Moench.* Marathwada Agrl. Dr. S. T. Borikar, Seed Research Officer, Seed Unit, Marathwada Agricultural University, Parbhani.

7. Godara, Anil Kumar. *Studies on the quality improvement of grapes and standardisation of raisin making.* HAU.

8. Gupta, Ravinder. *Soil hydrothermal variations associated with different mulches and their impact on the growth and yield of strawberry.* HP Krishi. Dr. C. L. Acharya, Department of Soil Science and Water Management, College of Agriculture, Palampur.

9. Ishwar Singh. *Response of aestivum and durum wheat varieties to different levels of irrigation and fertility.* HAU.

10. Jagdish Chander. *Studies on genetics of seed vigour, yield and its components in Indian mustard. Brassica juncea (L) Czern and Coss.* HAU.

11. Kutaaj, Sukhwinder Singh. *Biological control of bacterial leaf sport of mungbean. Xanthomonas campestris pv. Vigna radiatae.* PAU.

12. Mahla, Jagdish Chander. *Bio-ecology of sugarcane shoot borer, Chilo infuscatellus Snellen.* HAU.

13. Mangat Ram. *Studies on the production potential of raye, Brassica juncea (L) Czern and Coss, varieties under varying irrigation and fertility levels.* HAU.

14. Sharma, Girish Kumar. *Mutation studies in apple, Malus domestica/pumila.* YS Parmar. Dr. R. L. Sharma, Chief Scientist, Horticultural Regional Research Station, Bajaura, Distt. Kullu, H.P.

15. Shyam Lal. *Studies on genetic divergence, phenotypic stability and non-allelic interactions in pigeonpea.* HAU.

16. Singh, Bachchan Prasad. *Studies on Alternaria leaf spot of important cruciferous vegetables in Bihar.* Rajendra Agrl.

17. Singh, Parvinder Pal. *Hybridization studies in mandarin cultivars, citrus reticulata Blanco.* PAU.

18. Sinha, Ram Nandan. *Investigations on red spot disease of sugarcane caused by Colletotrichum falcatum Went in Bihar.* Rajendra Agrl.

19. Tak, Gh. Mohi-ud-din. *Studies on gene action for seed yield and fibre traits in linseed, Linum usitatissimum L.* HP Krishi. Dr. N. D. Rana, Department of Plant Breeding, College of Agriculture, Palampur.

20. Vinod Kumar. *Studies on osmoregulation in cultured cells of Vigna radiata (L) Wilczek var, radiata.* HAU.

21. Yash Pal. *Genetic studies on white rust, Albugo candida; seed yield and its attributes in Indian mustard, Brassica juncea (L) Czern and Coss.* HAU.

Medical Sciences

1. Bhattacharyya, Samita. *Role of macrophages in resistance to cancer and modulation of its functions.* Calcutta.

2. Dhenge, Sunanda. *Studies on fracture on hard sheets.* HS Gour. Dr. H.S. Maheshwari, Department of Criminology and Forensic Science, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

3. Harbans Singh. *Development of hydrosurgery equipment (water scalpel): Its workability, efficacy and acceptability in hepatic surgery, an experimental study.* Rajasthan. Dr. R. N. Jhanji, Prof. and Head, Department of Surgery, J.L.N. Medical College, Ajmer.

4. Mukhopadhyay, Debnath. *A study on some drug therapies in acute myocardial infraction for reduction of infarction size and its clinical evaluation.* Calcutta.

5. Sapru, Mohan K. *A study on the molecular (biochemical) basis of major psychiatric disorders.* Bangalore. Dr. B S. Sridhara Rama Rao, Prof. and Head, Department of Neuro Chemistry, National Institute of Mental Health and Neuro Sciences, Bangalore.

6. Shah, Raksha Shashikant. *Studies on humun fetal and neonatal development in relation to gestational age, body weight and maternal nutritional status with special reference to lipids and lipid soluble vitamins.* Baroda.

7. Suresh Babu, N.P. *Studies on human filariasis with reference to detection, strain variation and development of microfilariae.* Kerala. Dr. R. Kaleysa Raj, Prof. and Head, Department of Biochemistry, University of Kerala, Kariavattom, Trivandrum.

Veterinary Science

1. Dina Nath Prasad. *Study on digestion and metabolism of nutrients relative to buffalo, cattle and sheep.* HAU.

2. Gurmej Singh. *Genetic analysis of closed flocks of avikalin and avivastra strains of sheep.* PAU.

3. Punia, Jogender Singh. *Studies on the disposition of norepinephrine and epinephrine in small intestine of WLH chicken.* HAU.

EDUCATION NEWS INDEX

A List of Select Articles and Editorials on Education from Newspapers received in the AIU Library during May, 1988.

EDUCATIONAL PHILOSOPHY

Ansari, Habeebulhaque. Iqbal on education. *Patriot*, 29 May '88.

Mathur, V.S. Need to recapture the Gurukul Spirit. *The Hindu* 3 may, 1988.

Subramanyam, Ka Naa. Education : Then and now. *Deccan Chronicle*, 8 May, 1988.

EDUCATIONAL SOCIOLOGY

Khan, Asif. Role of universities in rural development. *The Indian Nation*, 29 May, 1988.

EDUCATIONAL PLANNING

A NATIONAL CAMPAIGN (Editorial). *Patriot* 7 May, 1988.

Atma Ram. A policy in search of excellence. *The Hindu* 31 May, 1988.

Bose, Hiren. Literacy mission a pipe-dream. *Free Pres Journal* 13 May, 1988.

Dasgupta, R K. The idea of a college. *Amrita Bazar Patrika* 1st May 1988.

HIGH SPEED LITERACY (Editorial). *The Tribune* 7 May, 1988.

Joshi, Navin Chandra. Imperatives of literacy drive. *Deccan Chronicle*, 2 May, 1988.

LITERACY AND PROGRESS (Editorial). *The Hindustan Times*, 7 May, 1988.

THE OFFENSIVE AGAINST ILLITERACY (Editorial). *The Hindu* 9 May, 1988.

Vyas, Neena. Literacy—Key to faster progress. *The Statesman*, 3 May, 1988.

EDUCATIONAL ADMINISTRATION

A LOST GENERATION (Editorial). *The Poineer*, May 5, 1988.

NCERT MUDDLE (Editorial). *The Hindustan Times*, 17 May, 1988.

Puri, Rakshat. Hindustani in DU. *The Hindustan Times* 31 May, 1988.

EDUCATION AND POLITICS

Hardwari Lal. Politics and varsities—I & II. *The Tribune* 22 & 29 May, 1988.

CURRICULUM

Bhattacharya, Jibesh. The teaching of English at the honours level. *Amrita Bazar Patrika*, 31 May, 1988.

Md. Khairozzaman, A. E. Study of humanistic social sciences. *The Assam Tribune* 1 May, 1988,

Raghavan, B.S. American interest in Indian studies. *The Hindu* 31 May, 1988.

Raychaudhuri, Tapan. Education in humanities—Can we reduce the waste ? I & II. *The Times of India*, 16 & 17, May, 1988.

LANGUAGE & LANGUAGE POLICY

Ray, Arabinda. Education does not mean competence in English. *The Telegraph*, 20 May, 1988.

VOCATIONAL EDUCATION

MEDICAL EDUCATION : TOO MANY LEAKS. *The Telegraph* 23 May, 1988.

Varadan, M.S.S. Reorienting academic structure for MBAS. *The Hindu* 26 May, 1988.

Warrier, B.S. Technician training problems. *The Hindu* 31 May, 1988.

DISTANCE EDUCATION

ANOTHER DEGREE MACHINE (Editorial). *National Herald*, 17 May, 1988.

Anjanappa, K. Open universities—lessons from the Thai model. *The Hindu* 3 May, 1988.

TEACHERS & TEACHING

Amrik Singh. Housing for teachers. *Amrita Bazar Patrika* 9 May, 1988.

———————Teachers' perks and facilities. *The Tribune* 17 May, 1988.

——— ——Transfer bane plaguing teachers. *The Poineer* 15 May, 1988.

Bhogle, A.D. Lacuna in undergraduate classes. *The Hindu* 10 May, 1988.

Sridhara, M.V. Teacher evaluation : Some problems. *The Hindu* 24 May, 1988

EDUCATIONAL RESEARCH

Bhatia, Sneh Lata. Search and research for technology. *The Economic Times*, 23 May, 1988.

Nandakumar, Prema. Obstacle races in research. *The Hindu* 16 May, 1988.

Ramachandran, R. Indo-U.S. research muddle. *The Hindu* 31 May, 1988.

EDUCATIONAL EVALUATION

Amrik Singh. Menace of mass copying. *The Tribune*, 4 May, 1988.

Parthasarathy, R. Examinations: Copying with complexity. *The Hindu*, 24 May, 1988, WHOSE RESPONSIBILITY ? *The Indian Nation* 2 May, 1988.

ECONOMICS OF EDUCATION

Ajit S. Gopal. Brain drain or investment? *The Tribune* 8 May, 1988.

Amrik Singh. Capitation fee : Myth and reality. *The Tribune* 30 May, 1988.

BUNGLING IN SCIENCE (Editorial), *The Hindustan Times*, 3 May, 1988.

CRISIS IN VARSITIES (Editorial). *Indian Nation*, 1 May, 1988.

FUNDS FOR VARSITIES (Editorial). *The Indian Nation*, 7 May, 1988.

PAY AS YOU LEARN (Editorial). *The Pioneer* 26 May, 1988.

BOOKS & LIBRARIES

Chopra, Ashok. Copyrights and copywrongs. *The Tribune* 8 May, 1988.

Dasgupta, R.K. Idea of an information centre. *Amrita Bazar Patrika*, 29 May, 1988.

STUDENTS & STUDENT ACTIVITIES

Shamsuddin. Graduating to mediocrity. *Free Press Journal* 27 May, 1988.

ADULT EDUCATION

Lalitha Murali. Teaching aids must contribute to learning. *The Hindu*, 10 May, 1988.

Menon, S.V. Literacy link with jobs. *The Indian Nation*, 1 May, 1988.

Sekhar, Chitra. Adult literacy. *The Indian Nation*, 9 May, 1988.

INTERNATIONAL CO-OPERATION

Khan, Asif. Commonwealth of learning. *The Indian Nation* 25 May, 1988.

——— Commonwealth varsities. *The Indian Nation* 23 May, 1988.

BIOGRAPHIES

NO MOURNING FOR HIM (Editorial) (Zakir Husain). *The Tribune* 22 MAY, 1988.

UNIVERSITY OF KERALA

UNIVERSITY BUILDINGS
TRIVANDRUM

No. Ad. DI 2/2994/88

Dated 23rd May, 1988.

NOTIFICATION

Applications are invited from qualified candidates for appointment to one post of Lecturer on Rs. 1300-2725 in the University Department of Computer Sciences. The vacancy is reserved for S.C./S.T. candidates.

Qualifications

(a) 1. First or Second Class M.Sc., M.Tech. or M.Sc. (Engg.) in Computer Science with not less than 50% marks of an Indian University or equivalent qualifications from a foreign University.

OR

2. First or Second Class Master's Degree in Mathematics, Physics, Statistics or Operations research B.E. or B.Sc. (Engg.) in Electrical/Electronics Engineering of an Indian University or equivalent qualification from a foreign University.

(b) Two years experience in teaching/research and development/industry in Computer Science and Applications.

Desirable : Experience in the utilization of a large Computer System.

Note : Requirement of experience may be relaxed in the case of candidates having outstanding research/industry/academic achievements in the field of Computer Science and Applications.

The qualifications prescribed under 2 (b) above are relaxable in respect of the candidates from Reserved Communities.

Age : Not more than 40 years as on 1-1-1988 (Usual relaxation of 5 years for S.C./S.T. candidates and 3 years for O.B.C. candidates will be allowed).

In the absence of suitable candidates from the reserved community, applications from other reserved communities will be considered in accordance with the rules relating to communal rotation. In the absence of suitable candidates from any of the reserved communities, applications from forward community candidates will also be considered.

Request for application form accompanied by S.B.T. challan receipt for Rs. 2/- remitted under Kerala University Fund Account or Crossed Postal Order for value of Rs 2/- payable to the Finance Officer, University of Kerala, Trivandrum (in the case of candidates residing outside Kerala State only), should be addressed to the Deputy Registrar (Administration-II), University of Kerala, Trivandrum Pin 695 034.

The last date for receipt of completed applications is **30 June, 1988.**

REGISTRAR

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MINISTRY OF DEFENCE

DEFENCE RESEARCH & DEVELOPMENT ORGANISATION (DRDO)

Applications from Young Engineering Graduates with aptitude for Research and Development are invited for the following Fellowship Courses in DRDO :

1.	**FOURTH ELECTRONICS FELLOWSHIPS COURSE**	**100**	**UR—77** **SC—15** **ST— 8**
2.	**INTEGRATED MECHANICAL ENGG FELLOWSHIP COURSE**	**30**	**UR—23** **SC— 5** **ST— 2**
3.	**SENIOR FELLOWSHIP COURSES IN GUIDED MISSILE TECHNOLOGY LEADING TO M.E./M. TECH. DEGREE**	**30**	**UR—23** **SC— 5** **ST— 2**

The fellowships are tenable for 12 to 18 months in various Institute/universities. The selected fellows have to undergo training in specialised courses. On successful completion of courses they may be absorbed as Scientists 'B' (Central Service, Group 'A' Gazetted, Pay Scale : Rs. 2200-4000) in Defence Research Devclopment Service (DRDS).

Admission criteria and eligibility conditions for each fellowship programme is given in the succeeding paragraphs :

(1) ELECTRONICS FELLOWSHIP COURSE

Selected candidates would have to undergo specialised training as Fellows at Institute of Armament Technology, Pune for a period of 12 months. The fellows will have to pass such tests as are prescribed by the Institute.

Eligibility

(a) **Age** : Not exceeding 26 years (relaxable by 5 years in case of SC/ST candidates and Govt. servants. Age will be reckoned as on 29 June, 1988.

(b) **Educational Qualifications**: **Essential** : At least second class Master's degree in Physics/Applied Physics with specialisation in Elecronics/Solidstate Physics or second class Bachelor's degree in Electronics and/or Communication Engineering from a recognised university or equivalent.

(Candidates appearing in qualifying examination may also apply. Their candidature will be considered provisionally subject to their acquiring the essential qualifications by 31st July, 1988).

Desirable : GATE qualified candidates will be preferred.

(2) INTEGRATED MECHANICAL ENGG FELLOWSHIP COURSE

Fellowships are tenable for a duration of 12 months during which candidates would have to undergo training at the Institute of Armament Technology, Pune. They would have to pass such tests as are prescribed by the Institute. After initial training phase, fellows would be specialising in Gas Turbine Technology/Armament/Automobile/Structures/Robotics etc. 10 Fellowships are earmarked for Gas Turbine Technology course and 20 for other specialisations,

Eligibility

(a) **Age** : Not exceeding 26 years (relaxable by 5 years in case of SC/ST candidates and Govt. servants). Age will be reckoned as on 29 June, 1988.

(b) **Educational Qualifications** : **Essential** : At least second class Bachelor's degree in Mechanical or Aeronautical Engg. from a recognised university or equivalent.

Desirble : GATE qualified candidates will be preferred.

(3) SENIOR FELLOWSHIP COURSE IN GUIDED MISSILE TECHNOLOGY LEADING TO M.E./M. TECH. DEGREE.

The fellowships are tenable for a duration of 18 months during which selected candidates would have to undergo specialised courses leading to post-graduate degree in the subject concerned. The candidates should send their applications direct to University/Institute (addresses are given below) for the programme in which admission is sought. Candidates who will be admitted by the Universities/Institutes for their M.Tech programmes will alone be considered for the award of these fellowships. All desirous candidates therefore should apply for admission to these Universities/Institutes simultaneously. Names of Universities/Institutes where these courses are run, number of fellowships, qualification requirements and the addresses at which the applications should be forwarded are given below :

Name of the University/ Inst.	No. of Fellowships	Name of the Course	Qualification requirements	Address for forwarding applications
I	II	III	IV	V
Indian Institute of Science, Bangalore-560 012	6	Flight Dynamics, Control Computer Science	Graduate in Aero/ Mechanical Engg./ Computer Science	Dy. Registrar
Indian Institute of Technology Madras-600 036	4	Composites Production & Design.	Graduate in Aero/ Mechanical Engg.	Head, Dept. of Aeronautical Engg.

Indian Institute of Technology, Delhi - 110 016	3	MMW system and devices, Signal Processing	Graduate in Electrical/ Electronic/ Micro-wave Engg.	Head, Centre for Advanced Research in Electronics.
Indian Institute of Technology, Kanpur-208016	3	Computer Sciences and Simulations, Composite materials structure	Graduate in Computer Science/ Mech. Engg.	Dean Academic
Indian Institute of Technology, Kharagpur-721 302	4	MMW Signal processing	Graduate in Electrical/ Electronics Engg.	Head, Dept of Electronics
Osmania University, Hyderabad-500 007	4	Signal Processing & Micro Electronics	Graduate in Electrical/ Electronics Engg.	Head. Dept of Electronics & Communication Engg.
Jadavpur University Calcutta-700 032	3	Guidance Algorithm, Software	Graduate in Electrical/ Electronics Engg/ Computer Science	Head, Dept of Electronies Engg.
PSG College of Technology Coimbatore	3	Computer aided Design & Manufacturing	Graduate in Electronics/ Electrical/ Mechanical Engg.	Head, Mech. Engg, Deptt.

Candidates enrolled under the followship scheme will undertake studies in one of the disciplines in the M.E./M.Tech programme in one of the Universities/Institutes and specialise in the areas at the Institute choosing appropriate electives. They will be allotted project work by the Institute in consultation with DRDO and the work will be done in accordance with the required standards of the University/Institute.

Eligibility

(a) Age :—Not exceeding 26 years (relaxable by 5 years in case of SC/ST candidates and Govt. servants). Age will be reckoned as on 20 July, 1988,

(b) **Educational Qualifications : Essential :**—(i) At least second class Bachelor's degree in the subjects specified in column (iv) of the above table. (Candidates appearing at the qualifying examination may apply. Their candidature will be considered provisionally subject to their acquiring the essential qualifications by 31 July 1988). (ii) Passing of GATE 1988 examination.

General Conditions/Instructions

(1) Candidates working in Government/Public Sector/ Autonomous Organisations should apply through proper channel.

(2) Knowledge of German, French, Russian, Japanese or Chinese language is a desirable qualification in all cases.

(3) The prescribed Essential Qualifications are minimum and the mere possession of the same does not entitle candidates to be called for interview. Where the number of applications received in response to an advertisement is large and it will not be convenient or possible for the Recruitment and Assessement Centre (RAC) to interview all those candidates, the RAC may restrict the number of candidates for interview to a reasonable limit on the basis of qualifications/merit higher than the minimum prescribed in the advertisement.

(4) The RAC at their discretion, may hold a written test of candidates applying for Fellowship. No travelling or other allowance will be paid by the RAC for appearing at such written test. Only those qualifying in written test, (if held) will be called for interview. TA will be admissible for those called for interview. The number of Fellowships mentioned is tentative and may change.

(5) In case SC/ST candidates are not available in the required number, general candidates will be considered.

(6) Applications should be sent on the plain paper in the format given below (to be typed in A-4 size paper, 23 x 10 cm) accompanied by a crossed non-refundable current Indian Postal Order of the value of Rs. 8.00 drawn in favour of Senior Accounts Officer, RAC, Defence Research and Development Organisation, payable at New Delhi. There is no fee for Scheduled Caste/Scheduled Tribe candidates.

(7) Self-attested copies of certificates in support of educational qualifications, experience etc. should be attached with the application. Candidates will have to produce during interview the proof of details furnished by them in the application.

(8) The application should be accompanied by two self-addressed unstamped covers of 23 cm x 10 cm size.

(9) Only typewritten applications will be accepted. Incomplete applications will be rejected and no correspondence will be entertained in this respect.

(10) Only Indian nationals need apply.

(11) The applications should be sent to Director, Recruitment and Assessment Centre, Lucknow Road, Timarpur, Delhi 110007 preferably by registered post in a cover superscribed "Application for Fellowship Programme". Completed applications should reach latest by **29th June, 1988** for Electronic and Mechanical Engg. fellowships courses (items 1 and 2) and by 20th July 1988 in respect of Senior Fellowship Course for Guided Missiles Technology Course (item 3). Last date of receipt of applications for candidates from Andaman and Nicobar, Laksnadweep islands and abroad is 13 July/03 Aug. 1988 respectively.

(12) Candidates for specialised Engineering Fellowship Scheme should send their applications alongwith requisite Postal Orders direct to the Institute to which they would like to seek admission in the M.E./M.Tech. Programme (addresses have been given above under Column V of the table).

(13) CANVASSING IN ANY FORM WILL MEAN DISQUALIFICATION.

(14) Selection : Selection will be on the basis of a test/ interview.

(15) Stipend & Salary : During training, the trainees will be paid a consolidated stipend of Rs. 2000)- per month. In addition, book allowance would be admissible. They may be given suitable Hostel Accommodation during the period of Fellowship on payment of rent as per rules. On successful completion of the training, candidates would be placed in one of the Laboratories/Establishments as Scientists 'B' in the scale of Rs. 2200-75-2800-EB-100-4000. The approximate total emoluments (ATE) at the minimum of the scale vary from Rs. 2726/- to Rs. 3036/- per month depending upon the place of posting.

(16) For instructional tours and summer training in the DRDO establishments, the Fellows will be entitled to TA/DA as admissible to Central Government Group 'A' Officers drawing a basic pay in the scale of Rs. 2200-75-2800-EB-100-4000.

(17) During the operation of the Fellowship Scheme, the Fellows will be required to pass all tests/examinations which are prescribed by the Institute. Those who are not able to pass such tests/examinations and do not successfully complete the training shall not be considered for appointment to the grade of Scientist 'B'.

(18) Bond : Candidates will be under contractual obligation to serve the Defence Research & Development Organisation for a period of three (3) years, after completion of training. During training the candidates will not be permitted to apply/appear for any interview/selection/examination.

(19) Promotion Prospects : DRDO offers excellent opportunities for career advancement as Scientists. Result-oriented and highly motivated scientists can look forward to promotion to the following grades. Approximate total emoluments (ATE) at the minimum of the pay scale will depend upon the place of posting.

Scientist 'C' : Rs. 3000-4500 (ATE Rs. 3710 to Rs. 4090)
Scientist 'D' : Rs. 3700-5000 (ATE Rs. 4575 to Rs. 5055)
Scientist 'E' : Rs. 4500-5700 (ATE Rs. 5475 to Rs. 6055)
Scientist 'F' : Rs. 5100-6300 (ATE Rs. 6079 to Rs. 6659)
Scientist 'G' : Rs. 5900-7300 (ATE Rs. 6951 to Rs. 7531)

Promotion in DRDO depends upon merit and performance and is not linked to availability of vacancies.

PROFORMA APPLICATION

APPLICATION FOR FELLOWSHIP COURSE IN————

Affix Passport size latest Photograph

1. Name in full (Shri/Smt/Km.) (in block letters)
2. Title of Fellowship :
3. (a) Name of the Institute/University at which admission is being sought
   (b) Name of the discipline of Engineering for which admission is sought
4. (a) Date of Birth (in Christian Era in Figures)
   (b) Age as on 29 June/ 20 July 1988* (*As applicable)
5. Nationality
6. Marital Status
7. Father's/Husband's Name
8. (a) Address for correspondence (in block letters with pin code)
   (b) Permanent address (in block letters with pin code)
9. Details of Postal Order (No. Date and Amount)
10. Nearest Railway Station
11. Whether belong to SC/ST (if yes, attach certificate)
12. Educational Qualifications In chronological order from X Standard (SSLC/HS/HSC) onwards

Sr. No.	Course Passed	University/ Institution/ Board	Year of Passing	Subject taken	Percentage of Marks

13. (a) Are you a Govt. servant : Yes/No
    (b) If yes, whether in Central/State Govt/Union Territory Govt.
14. Professional Training.

	Period		
Organisation	From	To	Details of Training

15. (a) Are you qualified at GATE 88.
    (b) If qualified, please give the percentile score :
16. Employment Record :

Name & address of Employer	Period of service		Designation of the post held	Scale of pay of each post	Detailed description of work*	Reason for leaving
	From	To				

* Separate sheet may be attached if necessary.

17. Minimum joining time required :
18. Field of Special interest :
19. List of Papers Published ;
20. Are you under any contractual obligation to serve Central/ State Govt/PSU/Autonomous Body ? If so, give details.
21. Details of relatives already employed in DRDO :

Name of Relatives	Relationship	Lab/Estt in which employed	Post Held

22. Any other information you may wish to add (Use separate sheet if necessary)
23. Declaration.

I declare that the foregoing information is correct and complete to the best of my knowledge and belief and nothing has been concealed/distorted. If at any time, I am found to have concealed/ distorted any material information, my appointment shall be liable to summary termination without notice/compensation. I will, if and when required, take up duty in the discharge of government assignments anywhere in India.

Place :
Date :

Signature of Candidate

davp 88/144

Cochin University of Science & Technology

COCHIN-682 022

VACANCY NOTIFICATION

SPECIAL RECRUITMENT FROM SC/ST COMMUNITIES

No. Ad A3/54/77

Applications in the prescribed form are invited from qualified candidates belonging to Scheduled Caste/Scheduled Tribe Communities for appointment to the following posts included among the non-teaching service of the University.

CLASS II CATEGORY POSTS

1. **Systems Analyst** (Rs. 1300-2725)—1 post (Temporary but likely to become regular)

Qualifications & Experience : (1) I or II Class M. Tech Degree in Computer Science. (2) Proficiency in Database development, Computer Graphics, System Software, Languages like PASCAL, 'C'.

2. **Technical Assistant Grade 1** (Material Science/Solid State Physics) Rs. 1250-2500 (Temporary but likely to become regular)—1 post.

Qualifications & Experience : Master's degree in the concerned/related subject with two year's laboratory experience.

3. **Computer Programmer** (Rs. 1250-2500)—1 post.

Qualifications & Experience : (1) A University degree and a Diploma or Degree in Computer Science from a recognised University. (2) Sound knowledge of COBOL, 'C', and PASCAL (3) Familiarity with database and hands on experience with mini computers desirable.

4. **Statistical Officer** (Rs. 1100-2100)—1 post.

Qualifications & Experience : M.Sc. in Statistics with experience/training in Computer Programming.

5. **Welding Technologist** (Rs. 1050-2000)—1 post

Qualifications : Essential : B. Tech in Mechanical Engineering. **Desirable :** Knowledge of advanced welding technologies like Electro slag and Electro gas welding.

CLASS III CATEGORY POSTS

6 **Technical Assistant Grade II** (Rs. 975-1720)—1 post

Qualifications & Experience : Bachelor's Degree in Chemistry with a minimum of five year's Laboratory experience.

7. **Library Assistant Grade I** (Rs. 850-1600)—2 posts

Qualifications : A University degree and degree/diploma in Library Science.

8. **Chemical Assistant** (Rs. 780-1320)—1 post

Qualifications & Experience : A Bachelor's degree in Chemistry.

9. **Technician** (Rs. 780-1320)—1 post

Qualifications : ITI in Instrument Machanics with a pass in Apprenticeship Training Examination.

10. **Ammonia Print-cum-Photocopier Operator** (Rs. 740-1245)—1 post

Qualification & Experiennce : Essential : (1) Matriculate or equivalent. (2) Two years experience in the specific field. **Desirable :** Experience in carrying out minor repairs on xerox machine.

11. **Tracer/Overseer Grade III** (Rs. 675-1125)—1 post each.

Qualifications : (1) SSLC or equivalent and (2) Diploma in Civil Engineering or any other qualification equivalent thereto, as prescribed in Kerala Engineering Subordinate Service (General) Rules.

12. **L.D. Typist/Stenographer** (Rs. 675-1125)—2 posts.

Qualification : (a) General : Pre University/Pre-Degree pass certificate or pass in Part I English of the Intermediate examination. The afore-mentioned minimum general qualification will be relaxed in the case of those who have any one of the following qualifications:

(1) SSLC with 50% marks in English (2) SSLC and Typewriting High Speed English (KGTE/MGTE) (3) SSLC and Shorthand English Lower (KGTE/MGTE)

(b) **Technical :** (1) Higher Grade Examination in Typewriting English (KGTE/MGTE) or equivalent qualification (2) Lower Grade Examination in Typewriting Malayalam (KGTE).

13. **Gardener** (Rs. 575-900)—1 post.

Qualifications & Experience : (1) Ability to read and write. The maximum qualification shall not exceed a pass in 9th Standard. Experience in gardening desirable.

1. Age not below 18 years and not above 40 years as on 1-1-1988. The age limit prescribed will not apply to employees already in the service of the Cochin University of Science & Technology.

2. Separate application should be submitted for each post applied for,

3. Prescribed application forms alongwith instruction sheets can be had free of cost from the Administrative Office, Cochin University of Science and Technology, Cochin 682 022 on a requisition made to the undersigned.

4. Application forms will be sent by post, if requested alongwith a self-addressed envelope bearing postal stamps worth Re. 1/-. Request for applications by post received after 23-6-1988 will not be entertained.

5. Completed applications along with true copies of documents to prove age, community and caste, qualification, experience etc. should reach the undersigned before 5.00 p.m. on or before **30-6-1988.**

6. Late and defective applications will be summarily rejected.

V. J. Pappoo
REGISTRAR

CLASSIFIED ADVERTISEMENTS

COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY

COCHIN - 682 022

No. Ad. A2-66-88 (C) **Requires**

LECTURERS

(Scale of Pay Rs. 1300-2725)

Applications in the prescribed form are invited from qualified candidates for appointment to the following posts of Lecturers included among the teaching service of the University.

Department/School	No. of Posts	Specialisation
1. Foreign Languages	1	French
2. Foreign Languages	1	Russian
3. Management Studies	1	Bank Management
4. Marine Sciences	1	Microbiology (Marine)
5. Marine Sciences	1	Meteorology with experience in Computer Applications
6. Management Studies	1	Production Management/ Personnel Management
7. Management Studies	1	Business Administration

1. Age not more than 40 years as on 1-1-1988. Relaxation in upper age limit as in the Government of Kerala will be available for all the aforesaid posts. The age limit prescribed will not be applicable to the teachers already in the service of the University.

2. Appointments will be made in accordance with Section 7(2) of the Cochin University of Science and Technology Act, 1986 (Act 31 of 1986) and as per the rules framed by the Syndicate of the University.

3. Prescribed application forms alongwith information sheets can be had on payment of Rs. 5/- at the University Cash Counter. Application forms will be sent by post, if requested along with a postal order worth Rs. 5/- drawn in favour of the Registrar, Cochin University of Science & Technology, payable at Cochin-682 022 Post Office, and a self-addressed envelope bearing postal stamp worth Rs. 3/-.

4. Separate application should be submitted for each post applied for.

5. Request for applications by post received after 23 June, 1988 will not be entertained.

6. Completed applications alongwith copies of documents to prove age, community, qualifications. experience etc., should reach the undersigned before 5.00 p.m. on or before **30 June, 1988**. Late and defective applications will be summarily rejected.

V.J. Pappoo
REGISTRAR

MODEL INSTITUTE OF EDUCATION & RESEARCH

B.C. ROAD, JAMMU

M.I.E.R. A poineer Institution in J&K State dedicated to the promotion of Education, Research, Training and Social Welfare (Estd. 1936) invites applications within 30 days of this publication for Lecturers-Cum-Research Officers for the MIER College of Education.

Salary : Rs. 2200 to 4000 plus allowances (UGC Grade)

Qualifications : M.A. / M.Sc. with M.Ed. and Ph.D. with good academic record and teaching experience at B.Ed./M.Ed. levels.

Candidates attending interview shall do so at their own expenses. Higher start in pay passible for candidates possessing additional/higher qualifications and administrative/research experience. Applications complete in all respects with a copy of a recent photograph be addressed to the undersigned along with a crossed Indian postal order of Rs. 20/- (non refundable) in the name of the Director, MIER.

Prof. Abdul Aziz
REGISTRAR

UNIVERSITY OF KERALA

Advt. No. PR. 1201/12/88

Dated : 25th May, 1988

Notification

In partial modification of this office notification of even No. dated 26.4.1988 it is hereby notified that the post of Lecturer in the Department of Sanskrit is an Open Vacancy and not reserved for Muslim community. The last date for receipt of applications for the post is extended to 20th June 1988.

S.K. Rajagopal
REGISTRAR

COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY

COCHIN-682 022

VACANCY NOTIFICATION

Ad. A2/66/88

Applications in the prescribed form are invited from qualified candidates belonging to Scheduled Caste/Scheduled Tribe Communities for appointment to the following posts included among the teaching service of the University.

Department/School	Name of the Post	Specialisation	No. of Post
Computer Science	Professor in Computer Science	Nil	1
Law	Reader in Law	Jurisprudence	1
Management Studies	Reader in Management	Production Management/Operation Management/Quantitative Technique	1
Foreign Languages	Reader in English	Nil	1
Environmental Studies	Reader in Environmental Studies	Chemical Engineering/Environmental Engineering	1
Mathematics & Statistics	Reader in Statistics	Nil	1
Marine Sciences	Reader in Marine Sciences	Microbiology	1
Foreign Languages	Lecturer in German	Nil	1
Industrial Fisheries	Lecturer in Industrial Fisheries	Fishing Management	1
School of Management Studies	Lecturer in Management Studies	Management Studies	1
Applied Economics	Lecturer in Economics	Mathematical Economics and Statistics	1
Electronics	Lecturer in Electronics	Electronics	1
Applied Chemistry	Lecturer in Chemistry	Bio-chemistry	1
Mathematics & Statistics	Lecturer in Mathematics	Operational Research/Computer Science/History of Mathematics	1

1. Scale of Pay: Professor: Rs. 2450-3600
   Reader : Rs. 1950-2950
   Lecturer : Rs. 1300-2685
2. Age : Professor : Not more than 55 years as on 1-1-1988
   Reader : Not more than 50 years as on 1-1-1988
   Lecturer : Not more than 45 years as on 1-1-1988
3. The age limit prescribed will not be applicable to the teachers already in the service of the University.
4. Prescribed application forms alongwith information sheets can be had free of cost from the Administrative Office, Cochin University of Science & Technology, Cochin-682 022 on a requisition made to the undersigned.
5. Separate application should be submitted for each post applied for.
6. Application forms will be sent by post, if requested alongwith a self-addressed envelope bearing postal stamps worth Rs. 3/-. Request for applications by post received after 23 June, 1988 will not be entertained.
7. Completed applications alongwith copies of documents to prove age, community, qualifications, experience etc., should reach the undersigned before 5.00 p.m. on or before **30 June, 1988.** Late and defective applications will be summarily rejected.

V.J. Pappoo
REGISTRAR

VECTOR CONTROL RESEARCH CENTRE

(Indian Council of Medical Research)
PONDICHERRY 605 006

Applications are invited for THREE Junior Research Fellowships to work on several aspect of microbial pathogens of arthroped vectors of diseases at the Vector Control Research Centre. Candidates should have passed M.Sc. in Microbiology / Biochemistry/Biotechnology and should send their complete biodata so as to reach the Director, Vector Control Research Centre, Pondicherry 605 006 on or before **30th June 1988.** Those who had responded to the earlier advertisement need not apply again. Candidates selected can register for their Ph.D. with Central University, Pondicherry and will be paid a monthly stipend of Rs. 1800/- for a period of three years.

SANT DARBARA SINGH COLLEGE OF EDUCATION FOR WOMEN

LOPON. (Farid Kot) (Pb)
Via Badhni Kalan

"Wanted a lady Principal for S.D.S. College of Edu. for Women Lopon (Farid Kot), Punjab, on regular basis. **Qualifications :** 1. Master's Degree in Education as also a Master's Degree in another subject. (for those having M.A. Education and M.A. in another subject, B.Ed. shall also be an essential requirement). 2. 10 Years' teaching experience as an approved Lecturer in a College of Education or a Department of Education of a University. Provided that the teaching experience may be relaxed to 5 years in case of a person possessing Ph.D. degree in Education and to 8 years in case of a person possessing an M.Phil. degree in Education. Apply to the Secretary of the College with a copy to the Associate Dean, College Development Council, Panjab University, Chandigarh, within 15 days of publication of this want."

SECRETARY

COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY

COCHIN - 682 022

VACANCY NOTIFICATION

No. Ad. A2/66/88 (A)

Applications in the prescribed form are invited from qualified candidates for appointment to the following posts included among the teaching service of the University :

Department/School	Name of the post	Specialisation	No. of post
Physics	Professor in Physics	Industrial Physics	1
Marine Sciences	Professor in Marine Sciences (Temporary, but likely to become permanent)	Physical Oceanography	1
Applied Economics	Reader in Applied Economics	Mathematical Economics	1
School of Management Studies	Reader in Management Studies	Commerce	1
Law	Reader in Law	Criminal Law	1
Computer Science	Reader in Computer Science	Computer Science	1
School of Management Studies	Reader in Management-Studies	Marketing Management	1
Electronics	Reader in Electronics	Electronics	1
Computer Science	Readers in Computer Science	Computer Science	2
Physics	Reader in Physics	Physics	1
Electronics	Reader in Electronics	Electronics	1
Polymer Science & Rubber Technology	Reader in Polymer Science & Rubber Technology	Rubber Technology	1
School of Marine Sciences	Reader in Marine Sciences	Meteorology with specialisation in modelling	1

1. Scale Pay : Professor : Rs. 2450-3600
Reader : Rs. 1950-2950
2. Age : Professor : Not more than 50 years as on 1-1-1988
: Reader : Not more than 45 years as on 1-1-1988

3. Relaxation in upper age limit as in the Government of Kerala will be available for all the aforesaid posts. The age limit prescribed will not be applicable to the teachers already in the service of the University.

4. Appointments will be made in accordance with Section 7(2) of the Cochin University of Science and Technology Act, 1986 (Act 31 of 1986) and as per the rules framed by the Syndicate of the University.

5. Prescribed application forms alongwith information sheets can be had on payment of Rs. 5/- at the University Cash Counter. Application forms will be sent by post, if requested along with a postal order worth Rs. 5/- drawn in favour of the Registrar, Cochin University of Science & Technology, payable at Cochin-682 022 Post Office, and a self-addressed envelope bearing postal stamp worth Rs. 3/-.

6. Separate application should be submitted for each post applied for,

7. The persons who have already applied for the post of Readers in Computer Science and Electronics in response to the notifications dated 20-6-87 and 23-6-87 need not apply again.

8. Request for applications by post received after 23 June, 1988 will not be entertained.

9. Completed applications along with copies of documents to prove age, community, qualifications, experience etc., should reach the undersigned before 5.00 p.m. on or before 30 June, 1988. Late and defective applications will be summarily rejected.

V.J. Pappoo
REGISTRAR

COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY

COCHIN - 682 022

VACANCY NOTIFICATION

No. Ad. A3/12/87

Applications in the prescribed form are invited from qualified candidates for appointment to the following posts coming under the non-teaching service of the University.

CLASS I CATEGORY POST

Maintenance Engineer (Rs. 1950-2950)
1 Post

Qualification and Experience : (1) B. Sc. (Engg.)/B.E./B.Tech in Electronics & Communication Systems or equivalent. (2) Five Years experience in repair/maintenance of sophisticated electronic equipment. **Desirable :** Experience with Microwave equipment, Radar/Microprocessor and Computer Systems. Persons from reputed electronic manufacturing firms or ex-servicemen will be preferred.

CLASS III CATEGORY POSTS

1. **Technical Assistant Grade II** (Rs. 975-1720)—2 Posts

Qualifications & Experience : (1) B.Sc. Engg./B.Tech./Three Year Diploma in Electronics and Communication, Instrumentation Electrical Engineering. (2) Two years' experience (for graduates) & four years experience (for diploma holders) in repair and maintenance of consumer items like TV, VCR, Radio, Tape Recorder, Electrical appliances etc. **Desirable** : Acquaintance with modern electronic consumer items like Typewriters, Word Processors, Micro-processor controlled machines.

2. **Library Assistant Grade I** (Rs. 850-1600)—2 posts

Qualifications : A University degree and degree/diploma in Library Science.

3. **Instrument Technician** (Rs. 780-1320)—1 Post

Qualifications & Experience: (1) Three Year Diploma in instrumentation awarded by a University or a Directorate of Technical Education. (2) A minimum of two years experience in an educational/research/R & D Organisation belonging to the Public Sector in the repair and maintenance of scientific instruments including electronic instruments.

4. **Overseer Grade-III** (Rs. 780-1320) — 2 Posts

Qualifications : (1) SSLC or equivalent and (2) Diploma in Civil Engineering or any qualification equivalent thereto as prescribed in the Kerala Engineering Subordinate Service (General) Rules.

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*Appointments will be subject to the rules for communal reservation and rotation as provided for in Section 7(2) of the Cochin University of Science and Technology Act, 1986 (31 of 1986), as applied to posts collectively comprising each category.

*Age limit prescribed for the aforesaid posts will be not below 18 years and not above 35 years as on 1-1-1988. Relaxation in upper age limit to backward classes, Scheduled Caste-Scheduled Tribe, Ex-servicemen, physically handicapped etc., as in the Government of Kerala will be available for the aforesaid posts. The age limit prescribed will not apply to employees already in the service of the Cochin University of Science and Technology.

*Application forms can be had on payment of Rs. 2/- at the University Cash Counter. Application forms will be sent by post, if requested alongwith a Postal Order for Rs. 2/- drawn in favour of the Registrar, Cochin University of Science and Technology, Cochin-682 022 payable at Cochin-682 022 Post Office and a self-addressed envelope bearing postal stamp worth Re. 1/- Requests for application by post received after 23-8-1988 will not be entertained. Completed applications alongwith documents to prove age, date of birth, community, qualifications, experience etc., should reach the undersigned befor 5.00 p.m. on or before 30-6-1988. Late and defective applications wrll be summarily rejected.

V.J, Pappoo
REGISTRAR

INSTITUTE OF MICROBIAL TECHNOLOGY

1389, SECTOR 33-C,
CHANDIGARH

(Council of Scientific and Industrial Research)

Advertisement No. 5/88

I. Applications in the prescribed form are invited for the following posts:

1. Scientist EI/EII (Biochemical Engineer) : Two

Gr. IV(3) Rs. 3700-125-4700-150-5000
Gr. IV(4) Rs. 4500-150-5700

Educational qualifications and experience. Essential : A Ph.D. Degree in Biochemical Engineering/Chemical Engineering with 10 years postdoctoral research experience in a reputed institution or industrial organisation or experience of handling industrial operation/process in a biochemical/fermentation process based industry. Alternatively, a first class M.Tech degree in biochemical Engineering/Chemical Engineering with 12 years research/industrial experience in a fermentation industry or a biochemical/biological process based industry. Exceptionally qualified candidates may be considered for placement in Gr. IV (4) by the Selection Committee. Candidates otherwise suitable but with lesser experience may be considered at lower grade with the consent of the candidate

Desirable : Publications in reputed journals and/or relevant patents. Good knowledge of biochemistry of metabolism/microbial physiology/microbial processes. Knowledge of mathematical modelling application of computers in fermentation and other processes will be an advantage.

Job description : This is a senior level position in which the incumbent is expected to lead a research and development team to design new/improved processes upto pilot plant level. The person should be capable of interacting with industries so as to encourage industrial participation in the developmental programme of the Institute.

Age : Preferably below 40 years.

2. Scientist C

Gr. IV (2) Rs. 3000-100-3500-125-4500
No. of posts : One

Educational qualifications and experience. Essential : A Ph D. Degree in any branch of modern biology with 2 years experience or in chemistry with at least 6 years research experience (after Ist class M.Sc.) in one or more of the following areas as evidenced by an excellent record of published work. (i) carbohydrate and peptide chemistry (ii) recombinant DNA technology, (iii) targeted drug delivery, (iv) Enzymology and microbial/molecular genetics.

Desirable : Two years postdoctoral research experience in a reputed institution or industrial research and development organisation. Consistent good academic record and a broad based knowledge of biological sciences.

Job description : The incumbent is expected to be involved in the planning and execution of research programme under the overall supervision of a senior investigator or independently and to carry out related activities assigned to the scientists from time to time.

Age : Preferably below 35 years.

3. **Scientist B**

Group IV (i) Rs. 2200-75-2800-EB-100-4000

No. of posts : Three : Unreserved 1 post

(Reserved for SC-1 post
Reserved for ST-1 post
but General Category may apply)

Educational qualifications and experience :

A Ph.D. Degree in microbiology, biochemistry, cell biology, molecular biology, immunology or in any other branch of biology or a first class M Sc. Degree.

Job description : The selected person will work in one of the on-going projects which is considered suited to his/her qualification and research experience. The incumbent is expected to provide scientific assistance in execution of research projects of the institute and to carry out related activities that may be assigned to him/her from time to time.

Age : Preferably below 30 years.

4. **Scientist B** (Veterinary science) : One

Group IV (1) Rs. 2200-75-2800-EB-100-4000.

Educational qualifications and experience

Essential : Ph.D./Ist class M.V.Sc. Degree in Veterinary Science.

Desirable : 2-3 years experience in animal handling, care and breeding.

Job description : The incumbent will be responsible for maintenance of a modern animal house facility for biomedical research.

Age : Preferably below 30 years.

5. **Scientist B (Horticulture) (Gr. IV)—One**
(Rs. 2200-75-2800-EB-100-4000)

Essential : Ph.D./Ist Class M.Sc. in Agriculture/Horticulture.

Desirable : 2 to 3 years experience in care and management of gardens and green houses etc.

Job description: The incumbent will be responsible for landscaping, plantation, beautification and maintenance of the campus grounds.

Age : Preferably below 30 years.

6. **Junior Technical Assistant**
(Animal House Facility) : One
Grade VIII—Group III (I)
(Rs. 1400-40-1800-EB-50-2300)

Educational Qualification & Experience

Essential

A B.Sc. Degree in biological science.

Desirable

2 years working experience in animal handling, care and breeding.

Job description

The incumbent will be involved in maintenance of a modern animal house and other duty assigned to him/her. May be required to do shift duty.

Age : Preferably below 28 years.

II. Microbial Type Culture Collection & Gene Bank (MTCC)

Institute of Microbial Technology operates MTCC as a national facility jointly supported by CSIR and Deptt. of Biotechnology. This well equipped modern laboratory is devoted to serve the scientific community in academic institutions, research organisations and in industries. Principal objective of MTCC is maintenance, preservation and supply of authentic micro-organism and providing other services expected from a reputed culture collection.

7. **Scientist C : No. of posts : Two**
Group IV (2) (Rs. 3000-100-3500-125-4500)

Educational qualifications and experience

Essential : A Ph.D. Degree in any branch of biological sciences and consistent good academic record. At least two years post-doctoral research experience in a reputed institution. An excellent record of publication in reputed journals. Work experience in identification/taxonomy/preservation of micro-organisms such as actinomycetes/bacteria/fungi/yeasts. Commitment to excellent research in a field relevant to a culture collection.

Desirable : Research experience pertaining to taxonomy/environmental microbiology/ecology / genetics/molecular biology. Familiarity with modern and rapid methods of and approaches to microbial Indentification and taxonomy.

Job description : The incumbent would be assigned responsibility in various aspects related to a major microbial culture collection including identification, computerization, maintenance, preservation and distribution. In addition, should be involved in research either independently or as a part of an ongoing research group.

Age : Preferably below 35 years.

Scientist B : No. of post—2
Group IV (1) Rs. 2200-75-2800-EB-100-4000.

Educational qualification & Experience

Essential : A Ph.D. Degree in mycology or microbiology or in any branch of biological sciences. Alternatively, Ist Class M.Sc. in any fields mentioned above.

Desirable : Experience in taxonomy/identification of fungi and bacteria and familiarity with modern techniques of their maintenance and preservation. Specialised knowledge of any group of fungi/bacteria. A consistent good academic record and commitment to excellent research.

Job description: The incumbent would be associated with a senior scientist and would be involved in identification, maintenance, preservation and distribution of micro-organisms. He/she will be assigned responsibility in an ongoing research project.

Age : Preferably below 30 years.

Applicable to all Posts

Number of vacancies advertised may vary at the time of selection. In the event of a candidate being exceptionally good he/she may be offered higher grade/salary. Candidate(s) may also be considered, with his/her consent, for a post lower than applied for. In case of an excellent candidate requirement can be relaxed by 3 years. 5 years relaxation in age for SC/ST candidates is also admissible.

Total emoluments at minimum of the scale payable at Chandigarh at present :

Scientist E II	:	Rs. 5375.00
Scientist E I	:	Rs. 4575.00
Scientist C	:	Rs. 3710.00
Scientist B	:	Rs. 2726.00
Junior Technical Assistant :		Rs. 1792.00

General Conditions

Persons working in Govt. Deptt./Undertaking/Autonomous bodies should send their application through proper channel. Application form can be had free of cost from the Administrative Officer, Institute of Microbial Technology, House No. 244, Sector 35-A Chandigarh upto **20.7.88.** Number of advertisement, name of the post applied for and full address in block letters must be indicated at the top of the request which should be sent together with a self-addressed and stamped for Rs. 1.40 envelope of 22 cm x 10 cm size for obtaining the application form. Complete application in the prescribed form together with non-refundable application fee of Rs. 8 (No fee in case of SC/ST candidate) in the form of crossed Indian Postal Order drawn in favour of the Director, Institute of Microbial Technology, Chandigarh, alongwith attested copies of the testimonials/certificates should reach the Director, Institute of Microbial Technology, House No. 1389, Sector 33-C, Chandigarh, latest by **29.7.88.**

Canvassing in any form and/or bringing in any influence, political or otherwise will be treated as a disqualification for the post.

Since it is not possible to call all the candidates for interview/test, the applications will be short listed for the purpose and the decision of a duly constituted Screening Committee of the Institute will be final.

"Interim enquiries will not be attended to"

UNIVERSITY OF DELHI

Ref : Advertisement No Estab. IV/113/88 Dated 16.5.88 for Teaching and other Posts

CORRIGENDUM

She Special/Desirable Qualification for the following posts may be read as noted against each :

Faculty of Management Studies : Special/Desirable Qualifications

***Professor :** One, Accounting/Finance/Computer/MIS/Public Policy/Rural Development.

***Reader:** Three. Personnel Management and Industrial Relations/Organization Development/Marketing Management/Organization Behaviour/Accounting and Finance/Government and Business/Operations Research/Production Management.

Other details above these posts including essential qualifications remain unchanged.

The last date for receipt of applications for **these posts only** has been extended upto **27th June, 1988.**

J.C. Kochhar
REGISTRAR

MANIPUR UNIVERSITY

CANCHIPUR : IMPHAL

Advertisement No. 7/88 **Dated the 25th May, 1988**

Applications are invited for the following posts :

Post	Department	No. of Post	Specialization
PROFESSOR	1. POLITICAL SCIENCE	1	Research Methodology and Social & Political Thought of Modern India
	2. MANIPURI LANGUAGE & LITERATURE	1 (Temporary, initially for 2 years against a Chair)	Manipuri Language, Literature & Culture
ASSOCIATE PROFESSOR	1. LIFE SCIENCES	1	Genetics
		1 (Temporary, appointment to be for 2 to 3 years)	Ecology
	2. MANIPURI LANGUAGE & LITERATURE	1	Folklore
	3. ENGLISH LANGUAGE & LITERATURE	1	English Language Teaching (Method)
LIBRARIAN	...	1	...

Scales of Pay

PROFESSOR Rs. 4500-150-5700-200-7300/-

ASSOCIATE PROFESSOR Rs. 3700-125-4700-150-5700/-

LIBRARIAN Rs. 1500-60-1800-100-2000-125/2-2500/- (Pre-revised)

Essential Qualifications

Professor : An eminent scholar with published work of high quality actively engaged in research in the relevant field. About ten years experience of teaching and/or research. Experience of guiding research at doctorate level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge in the relevant field.

N.B. : The post of Professor in Manipuri Language & Literature is against a Chair. The appointment will be initially for two years and the Professor will be required to make a critical review of Grierson's works on Indian Language during the first two years.

Associate Professor : (a) Good academic record with a doctorate degree or equivalent published work in the relevant field. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.

(b) 5 years experience of teaching and/or research provided that at least three of these years were as Assistant Professor/Lecturer or in an equivalent position.

This condition may be relaxed in the case of candidates with outstanding record of teaching/research.

Librarian : Essential : (a) First or second class M. Lib. Sc.

OR

M.A./M.Sc./M.Com. plus a First or Second class B.Lib.Sc. or Diploma in Library Science.

(b) At least ten years experience as Librarian or in a responsible professional capacity in a University Library.

(c) Ph.D. Degree on equivalent research work in the field relevant to the profession.

Desirable : Training in Computerization/Information Technology/Specialized areas.

Candidates invited for interview will be given 1st Class railway fare as T.A. from the place of origin and back or the actual expenses on fare, whichever is less.

How to Apply : Applications on plain paper (in duplicate) with attested copies of certificates showing candidate's name, father's name, academic and professional attainment, teaching/professional and research experience, field of specialization, publications (to be enclosed with reprints), Seminars/Conferences attended, details of visits to foreign countries and assessment reports from at least two persons well acquainted with the candidate's professional work should reach the Registrar, Manipur University, Imphal-795 003 on or before **25th June, 1988.**

Applications received late or incomplete in any respect may not be entertained. Persons already in service must apply through their employers so as to reach this office on or before the last date fixed. No candidate will be considered for appointment unless he/she produces a "No Objection Certificate" from his/her employer at the time of interview.

Retired persons who have not attained the age of 62 years may also apply for appointment on contract basis. It will be open to the University to consider the names of suitable candidates who may not have applied.

In case a candidate is found not suitable for the post applied for and he is found suitable for a lower position, he may be considered for the latter on his request.

THE UNIVERSITY OF JODHPUR
ESTABLISHMENT SECTION

No : JDR/U/ESTT/7469

Dated : May 28, 1988

Advertisement No. 36/88-89

APPOINTMENTS

Applications are invited on the prescribed form for the following posts so as to reach the office of the undersigned latest by **25th June, 1988.** The application form can be obtained from this office on payment of Rs. 10/- (Ten) only through Indian Postal Order payable to the Registrar, University of Jodhpur, Jodhpur alongwith a self-addressed envelope of 24 x 11 cms. size bearing postal stamps of Rs. 5·90 n.p. Application fee for SC/ST candidates will be Rs. 2.50.

1. **Professor :** (one post)

Rs. 1500-60-1800-100-2000-125/2-2500 (unrevised) Electronics and Communication Engineering for Master of Computer Application Programme.

Qualification : An eminent scholar with published work of high quality actively engaged in research. Ten years experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding Engineer / Technologist with established reputation who has made significant contribution to knowledge.

2. **Associate Professors (Readers)** (two posts)

Rs. 1200-50-1300-60-1900 (unrevised)

(a) Electronics and Communication Engineering for Master of Computer Application Programme. (One)

(b) B.Sc. Diploma course in Consumers Electronics and T.V. Technology. (One)

Qualifications : Good academic record with a Doctor's degree in a relevant field. About five years experience of teaching and/or research and development. Provided further that candidates not possessing Ph.D. may be considered if they have to their credit equivalent research published work or design/development work of a high order in the institution or in an industry.

OR

In the case of persons to be recruited from industry or professional fields, candidate should possess good academic record with recognised professional work of about 7 years which should include innovation and/or research and development.

The interviews shall be held as per under noted programme. No separate interview letters shall be issued.

S.No.	Name of Post	Date & Time of Interview
1.	Professor	2nd July, 1988 at 10.00 a.m.
2.	Assoct, Professors	2nd July, 1988 at 3.00 p.m.

3. **Programmer Assistant for Master of Computer Applications Programmes** (one post)

Rs. 1720-40-2000-50-2300-60-2600-75-3050-100-3350.

Qualifications : Master's Degree in Computer Science/Computer Engineering/Master in Computer Applications with two years experience.

OR

Degree in Engineering with one years' experience in Computer Applications.

OR

Degree with Post-graduate Diploma in Computer Science / Technology / applications and two years' experience in Computer Science / Computer Engineering.

OR

Diploma in Engineering with post diploma in Computer Science/ Technology / applications and two years' experience in Computer Science/Computer Engineering,

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Rs. 1550-30-1640-40-2000-50-2300-60-2600-75-3050-100-3250.

Qualifications : Post-graduate Diploma in Computer Science/Computer Engineering/Computer Applications with two years experience

OR

Master Computer Applications.

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Diploma in Electronics / Electrical Engineering with post-graduate diploma in Computer Applications.

OR

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OR

Graduate in any branch of Engineering with exposure to Computer Applications.

The date and time for interview for the posts at Sr. No. 3, 4, 5 & 6 shall be intimated separately to the applicants.

Note :

1. Dearness Allowance, House Rent Allowance, City Compensatory Allowance etc. and PF will be payable as per University rules.
2. The University reserves the right to increase or decrease the number of posts. The University also reserves the right not to fill the posts, if deemed necessary.
3. Applications received after prescribed date will not be considered at all.
4. Candidate should affix passport size photo (latest) on the application form.
5. The University may call for interview only limited number of candidates for the posts at Sr. No. 3, 4, 5, 6. No TA and DA will be paid to candidates appearing for interview.
6. 16% and 12% posts are reserved for SC and ST candidates respectively. If no suitable SC/ST candidates are available these posts will be considered as general.

HKL Khattar
REGISTRAR

UNIVERSITY OF MADRAS

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NOTIFICATION

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Branches

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II-D Public Management
III-C Econometrics
*III-D Economics (Indian Economics)
V-B Indian Philosophy
V-C Saiva Siddhanta
VI-E Applied Psychology and Psychological Services
VII English, Urdu, Persian, Hindi, French, Kannada, Malayalam, Telugu (Special)
VII-A Tamil Literature and Tamil Culture Sanskrit
VII-B Tamil (Special)
VIII Indian Music
IX Ancient History and Archaeology
XIII Sociology
XIV Anthropology
XVI Defence Studies
XVII Andragogy
* MA Work Education
MA Communication
* MA Criminology
MA Jainology
MA Vaishnavism

II. M.Sc. Degree

Branches

I-A Mathematics
II Statistics
III-A Biophysics
*III-C Physics (Specialisation : Theoretical Physics, Nuclear Physics)
*IV-B Analytical Chemistry
IV-C Physical Chemistry
IV-D Organic Chemistry
IV-E Inorganic Chemistry
IV-F Polymer Chemistry
IV-G Environmental Chemistry
VII-A Applied Geology
VII-C Geology
VIII-A Applied Geography
VIII-B Cartography
X Biochemistry

M.Sc. Branches (conducted at IBMS, Taramani).

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M.Sc. Microbiology (Faculty of Medicine-3 Years)
M.Sc. Environmental Toxicology
M.Sc. Bio-Medical Genetics

III. *M.Com. (Business Systems)
IV. Master of Library and Information Science (MLIS) (One year Course)
V. ML (International Law and Constitutional Law)

*Conducted on an interdisciplinary basis

Prospectus and application forms can be had from the Registrar, University of Madras-600 005 from **30th May, 1988**, on requisition, with a Demand Draft for Rs. 30/- drawn in favour of the Registrar, University of Madras (together with a self-addressed stamped envelope of the size 28 x 13 cms for the value of Rs. 1-80 (in the case of postal requisitions). **Postal Orders and Money Orders** are not accepted. The last date for receipt of filled in applications will be **ten days from the date of publication of results of qualifying degree examinations of this University. Filled up applications should be sent directly to the Head of the University Department concerned and not to the Registrar, University of Madras before the expiry of the prescribed last date.**

The University reserves the right to start or suspend the conduct of any of the above courses, if the circumstances so warrant.

Major Dr. P. Kuttiappan
REGISTRAR

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BHOPAL

DEPARTMENT OF COMPUTER SCIENCE AND APPLICATIONS
(1988-89)

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OR

(B) Minimum 60% marks (55% for SC/ST) in B.A./B.Com. with at least one of the following major subjects:

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The Schedule Caste/Tribe will be given a relaxation of 5% on the total of the above three criteria.

Candidates, who have appeared in the final year of a Bachelor's/Master's degree examination may also apply, However, they must produce evidence of having passed the Bachelor's/Master's degree with firt class marks in aggregate by **July 28, 1988.**

If at any stage, it is found that a candidate does not satisfy the eligibility condition or the information furnished in the application is incorrect or his progress is not satisfactory, the University has all rights to cancel his/her admisson.

Prescribed application forms can be obtained from the office of the Head of the Department of Computer Science, Bhopal University, Bhopal-26 by sending a written requisition accompanied by a crossed I.P.O. of Rs. 8/- payable to the Registrar, Bhopal University and a self-addressed envelope of 23 cm x 10 cm affixed with a postal stamp of Re. 1/-. Completed application forms alongwith a crossed I.P.O. of Rs. 30/- (Rs. 10/- for SC/ST) payable to the Registrar, Bhopal University must reach to the Head of the Department latest by **20th July, 1988.** Candidates belonging to SC/ST must attach a certificate from the competent authority. The candidates in employment must enclose 'No Objection Certificate' from their employers.

DATE OF ENTRANCE TEST : **31st July, 1988 (Sunday) at 11.30 A.M.**

VENUE : BHOPAL UNIVERSITY CAMPUS.

REGISTRAR

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University News

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NANCIAL
GROUP DISCUSSION ON
ADMINISTRATION IN
JOINTLY ORGANISED
ASSOCIATION OF INDIAN UNIVERSITIES AND
UNIVERSITY OF POONA
V S POL

Shri J. Veera Raghavan (second from right), Secretary, Ministry of Human Resource Development, delivering the valedictory address at the Group Discussion-cum-Orientation Programme on Financial Administration in Universities organised by AIU at the University of Poona. Others seen (from L to R) are Shri V.S. Pol, Registrar, Prof. S.N. Navalgundkar, Pro-Vice-Chancellor, Prof. V.G. Bhide, Vice-Chancellor and Prof. S.K. Agrawala, Secretary, AIU.

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Editor :
SUTINDER SINGH

People's Science Movement
Karnataka Rajya Vijnana Parishat

M. I. Savadatti*
M. A. Sethu Rao**

The Karnataka Rajya Vijnana Parishat (KRVP), a voluntary organisation founded in 1980 and devoted to the popularisation of science and spreading of scientific temper, was recently awarded the inaugural prestigious national award of the National Council of Science and Technology Communication (NCSTC), Government of India. We are pleased to publish this write-up on this torch bearer of the People's Science Movement.

Introduction

The aim of Science is to acquire an accurate and dependable knowledge of the world around us. Aim of technology is to devise methods of using that knowledge for man's benefit. So, one can easily see that the origins of Science and Technology merge with the origin of man himself. For, man got differentiated from the rest of animals when he started using stone tools and the use of stone tools presupposes a knowledge of different kinds of stones (Science), and a knowledge of the methods of shaping them into the desired implements (Technology).

Science and Technology which thus arose out of the daily labour of the common man, started slowly moving away from him on account of specialization. In course of time they became so highly specialized that the common man got alienated from them and they became the preserve of a small coterie of supposedly wise men, who did all the Science and Technology and passed on the fruits to the common man, who, in the meanwhile, stopped taking interest in Science. The last few decades, however, have witnessed the wheel turning a full circle and today the common man can no longer afford not to take interest in Science. These are some of the factors responsible for the new situation calling for Popularisation of Science.

Firstly, Science through its handmaid, technology, has penetrated into the day to day life of the common man even in the remotest corners of the world. Rural electrification in this part of our country can serve as a pointer. Half a century ago, not more than half a dozen cities and towns of Karnataka had the benefit of electric lighting. Other electrical appliances were curiosities. Today, 93 per cent of villages in Karnataka have been electrified. The average villager is familiar not only with electric lighting but also with electric pumpsets and other gadgets. He is conversant with tractors, chemical fertilizers, pesticides, varieties of plastics, transistors, radio sets and TV sets. Because of all this it has become imperative that he should acquire some measure of knowledge

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**President, Karnataka Rajya Vijnana Parishat (KRPV) and Head of the Dept. of Physics, Karnatak University, Dharwar.*

***Hon. Secretary, KRVP, Indian Institute of Science Campus, Bangalore-560 012.*

concerning the how, why and what of all these accessories of modern life.

The second important change that has come about is that science has invaded statecraft, the art of running state affairs, in an unprecedented manner. A dozen or more Government Departments of today are wholly concerned with Science and Technology: the Departments of Science and Technology, Atom Energy, Space, Electronics, Ocean Development, Environment and so on. The total involvement of these departments in science is reflected in the fact that the secretaries who run these departments are often not professional administrators but professional scientists. Laying down policies for these departments, allocating budgetary provisions, deciding priorities are the responsibilities of the elected representatives of the people, who, in a true democracy, have to be guided by public opinion. In such a situation, scientific illiteracy of the common people can be exploited by vested interests. So, if our loyalty to democracy is genuine, imparting science education to our people is a matter of highest priority. Steps have to be taken to disseminate knowledge about science, its history, its achievements, its potentialities, its impact on society and, more than all, its method of approach to problems. It is in this background that Jacob Bronowski declared that the world today is made by science and is powered by science and for any person to abdicate an interest in science is to walk with open eyes into slavery.

The third reason why scientific education of the masses is of paramount importance is because of the salutary effect of the prevalence of a science and technology consciousness among the people and the harmful effect of the lack of such consciousness. If the majority of persons in a community evince an interest in scientific and technological developments, look for scientific reasons for all happenings and seek scientific solutions for their problems, it would create a climate in which even the scientifically untrained would tend to fall into the same groove. The absence of such a climate would push even the scientifically trained to adopt superstitions and obscurantist postures.

There is thus a need for an extensive programme of disseminating Science and the Scientific attitude among the masses. Scientists, no doubt, play an important role in such a programme. But, science has become far too important to be left to the scientists alone ! Nothing short of a people's movement encompassing all sections of the population can meet the needs of an organised effort to popularise science.

Karnataka Rajya Vijnana Parishat (KRVP)

The situation being ripe for it, the need for such a People's Science Movement was felt more or less simultaneously in different parts of our country during the last two or three decades and the period has witnessed the formation of several voluntary organisations in different linguistic regions.

The Karnataka Rajya Vijnana Parishat (KRVP) itself is a voluntary organisation founded in 1980, and devoted to the popularisation of Science and Spreading of Scientific Temper. It commenced as a project of the Karnataka State Council for Science and Technology (KSCST) on popularisation of science. Shri M.A. Sethu Rao, Joint Secretary of KSCST convened the project which later blossomed into a statewide organisation. KRVP now has about 300 units and 42 science centres spread across the length and breadth of Karnataka. KRVP's main target groups include children, students and youth, especially those in the rural areas.

KRVP has developed strong links with sister organisations such as KSCST, ASTRA, CES (IISc), ABAA, and is also associated with People's Science Movements throughout the country. KRVP spearheads a popular science movement in the State. It has secured the academic support of scientists from the Indian Institute of Science, universities in the State, the National Aeronautical Laboratory, Association of Bangalore Amateur Astronomers and other national and state bodies of Science and Technology. It has drawn upon the resource personnel of the IISc to deliver popular science lectures and works in close coordination with the UGC's popular science lecture scheme of IISc.

Supported by the Department of Science and Technology (Government of Karnataka) and the Department of Science and Technology (Government of India), KRVP is popular among students and youth of the State. Work of KRVP has been recognised by Government of India whose NCSTC has awarded the inaugural prestigious national award to KRVP for outstanding work in popularisation of Science and Technology. The citation refers to the effective network of KRVP units in the State, its telescope workshop and astronomy books, its efforts in popularising scientific temper and dissemination of rural technology etc.

Some Significant Programmes

A few significant components of KRVP's programmes are : Setting up Science Centres; Creation of scientific literature in Kannada, Production of science films, science kits, slides and posters, Environmental studies, camps, etc. Organisation of workshops, seminars, Organisation of All Karnataka Science Conference (Sammelana), and Dissemination of rural technologies.

1. Telescope Workshop

In association with the Association of Bangalore Amateur Astronomers (ABAA) four telescope workshops have been organised during 1984, 1985, 1986 and 1987. During 1986 and 1987, States outside Karnataka have also sent their representatives.

As a part of our project on Astronomy, the following books have been published and there is a continuous popular demand for them.

1. A Guide to the Night Sky (English and Kannada)
2. How to build a telescope (English and Kannada)
3. Clusters, Nebulae and Galaxies (English and Kannada)

It is proposed to organise such astronomy workshops every year with the financial support of NCSTC.

2. Production of Slides and Science Films

With the assistance of the Department of Science and Technology (Government of Karnataka), KRVP has produced the following films :

1. Parisara
2. Environmental Pollution
3. Energy (English and Kannada)
4. Scientific Attitude (English and Kannada)
5. Health and Hygiene.

Schools, colleges, KRVP units, theatres and doordarshan have been screening these films. A few copies are available for sale.

Besides these, KRVP is providing the following slide sets for popular science lectures and science exhibitions :

(1) Universe, (2) Starwars, (3) Western Ghats,
(4) Energy, (5) Forests, (6) Indian Scientists,
(7) Snakes etc.

The audio visual media is being effectively used for communication, especially in rural areas.

3. Environmental Camps

In collaboration with other organisations, KRVP units have been organising environmental camps. In these camps, environmental education is provided through films, nature studies, bird watching, expeditions, lectures, slide shows, wall posters etc. Camps are held in rural areas.

4. Science Festival

A few of the very active KRVP units have launched a programme of science festival. The programme generally spreads over a period of two to four weeks.

During this festival, KRVP activists participate in processions highlighting various themes such as environmental protection, pollution, etc., with the aid of slogans, films, slides, folk dance, plays etc. An intensive programme of selling popular science books is also one of the tasks. During October 1985, a month long science festival was organised by the Tumkur unit of KRVP. The festival turned into a multimedia communication effort and a precursor to Bharatk Jan Vigyan Jatha '87.

5. Science Centres

KRVP has established a number of Science Centres in the State. Prominent ones are at Institution of Engineers, Mysore and Belgaum Vijnana Kendra at Belgaum.

Objectives of the Science Centre

1. To enable the students to familiarise themselves with fundamental concepts in mathematics, physics, chemistry and biology through experimentation.
2. To develop a scientific attitude,

3. To provide a platform for scientific activities in villages, towns, taluks etc., and
4. To highlight environmental issues.

Belgaum Vijnana Kendra

The main inspiration for this is the Vikram Sarabhai Community Science Centre at Ahmedabad.

The Centre has already organised science education programmes for students of high schools and colleges. It has ongoing programmes for women working in nursery schools (Anganwadis). Some of the significant activities of the Science Centre are : Computer training, Seminars on energy, Science kit production, Environmental education programme, Science playground, and Curriculum development, etc.

6. KRVP Publications

Balavijnana

KRVP has been publishing 'Balavijnana', a science monthly in Kannada, since 1977. This caters to the students of high schools, neo-literates, etc. In addition to articles on selected subjects, it contains 'Do it Yourself', 'Science Quiz', 'Science Progress', 'Science Wonder', 'Question Box'' as permanent features. Today the print order of Balavijnana is 16,000 copies. Balavijnana has become an asset to students.

Popular Science Books

KRVP has so far published about 35 books on popular science and these low priced books have turned out to be very popular. Some of the titles have established a record in the history of Kannada book sales. These have gone through two or three editions, each of 5,000 copies or more.

Vijnana Deepa

Vijnana Deepa is a monthly wallnewspaper on science, produced for the benefit of students of primary schools. So far 20 issues have been brought out.

7. Akhila Karnataka Vijnana Sammelana

To ensure public participation in KRVP programmes and to coordinate unit activities, a state level science conference is held once in two years. The first conference was held at Dharwad in May 1984, the second in Gulbarga in October 1985, and the third was held at Tumkur in October 1987.

8. Rural Development Programme

KRVP units have been engaged in the construction, diffusion and evaluation of the ASTRA OLE (fuel efficient woodstove) programme.

Our units are also assisting KSCST in monitoring wind speed in various places as a prelude to installation of windmills.

Other rural development activities include Social forestry, Free health check ups, and Animal husbandry.

9. Dissemination of Rural Technologies

Programme at Mariammanahally (Raichur District)

1. Mariammanahally becomes an adopted village
2. Smokeless village by constructing ASTRA OLE in every house.
3. Free medical examination and vaccination.
4. Free eye treatment in camp.
5. Nutrition camp for Anganwadi teachers.
6. Science film shows.
7. Training in gardening, sericulture, etc.
8. Attempts at eradication of Devadasi system.

10. Future Plans of KRVP

In the near future the KRVP intends to take up the following programmes :

1. Intensify science kits development programme.
2. Production of video films, films and slides on science.
3. Production of a science glossary/dictionary.
4. Monitoring Astra Ole in the villages of Karnataka.
5. Organising Zilla Vijnana Sammelanas.
6. Establishing Planetarium in each district of Karnataka, etc. ☐

UNIVERSITY-INDUSTRY LINKAGE

S. P. Gupta*

Higher education has changed a great deal in its character in the recent past. Some of the changes are visible on the surface while some like a subcurrent are imperceptible, yet slow and sure like natural evolution they do happen along the arrow of time. Two deep features of this evolution are especially significant. First, higher education is becoming more diverse as the call for wide access gathers strength More women and more students from the weaker sections of society are now entering the portals of universities and colleges. Further, there is growing interest in late entry into universities, as a degree is becoming more valuable to an individual for his professional development, cultural enrichment and social status improvement. More than half of Swedish entrants to higher education are over 25 years old now.

So, with the growing interest of adults in furthering their education and opening of open universities and distance education programmes, more and more students will be part-time, more courses will be continuing education courses and more research will be of the applied kind. Secondly, higher education is becoming less liberal and more vocational in its ethos. The classical mission to socialize a student and to make him a gentleman has to give precedence to the demand for vocational education. There is a demand for gearing the courses and curricula more closely to the labour market. Both State and Society want vocational skills to be taught at universities—for example, computer programming, secretarial practice and accountancy. Students favour an education with clear job prospects. Yet, the supply of seats in vocational programmes cannot meet the demand, not to say of courses in engineering and medicine. Our universities have to accommodate vocational courses themselves in the absence of vocational colleges or Polytechnics of the British kind or community colleges of the American kind.

These shifts in the character of higher education are producing a changed environment in the total educational scenario. A university can no longer be content with the classic function of creating liberal minds, well equipped to face an issue as it comes in varied walks of life. More than anything, the country needs good quality manpower and higher education should be in the business of producing good quality graduates. Whatever their subjects, such people should possess broad and lively minds reinforced by intellectual, practical and last but not the least, physical competence. Analysis and problem solving in their broad sense are no less important in an arts graduate than flair, imagination and good communication ability in an engineering graduate. Apart from their merit *per se*, these qualities are called for in the field and professions. All kinds of graduates—arts to engineering—are being recruited into the areas of marketing, management, finance and civil services. They all will need to be able to think systematically, analyse, synthesize and even to create. In addition, they all will need to operate the management tools including the modern office equipment.

All graduates must eventually go to various employers for jobs, viz., government, commerce and industry. However, one of the glaring drawbacks of higher education in India is the want of any interaction whatsoever with the employres. In the employer—higher education linkage the scope for cross—fertilization is enormous, and because both have much to offer, the mutual benefits can be quite substantial. Sir Kenneth Baker, Secretary to the British Department of Education & Science, recently stressed the urgency of forging stronger linkage between universities and industries in Britain where there is already a base built up for decades. Among other things, the concern of British Universities and Polytechnics today is to attract large sums of money from industry and commerce. While this may not be the immediate issue in India, there are other significant results to be expected. Let us see how the university-industry linkage can be forged and how it may work in India :

(1) The teachers once they are in the academic system hardly go to the field for practical training or long exposure. With the proposed linkage they should gain breadth of experience and expertise; keep up to date with the latest developments and techniques, and obtain access to expensive equipment and other resources.

(2) Our industrial and commercial concerns do

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* *Additional Secretary, University Grants Commission, New Delhi-110 002.*

not continuosly refashion themselves in keeping with the international trend. They can benefit from the research and consultancy services of the universities. The range of expertise which they can tap provides opportunities to expand their activities and marketing potential. Some sections of their employees would gain from the contacts established but most, if not all, would gain from the increasing development of continuing education provision, refresher courses and seminars at the institutions.

(3) As regards the students, they would gain from their teachers' updated knowledge; from arrangements whereby knowledgeable people from outside universities act as visiting faculty, from involvement by industrialists and others in course design; and from the cycle of sponsorship, work experience and employment which is beneficial to all.

It is possible to organise a variety of regular academic courses with the collaboration of industries, for example, the practice school system of the BITS, Pilani or sandwich courses whereby the students spend several semesters of their course in the industry itself.

(4) Another aspect of industry-university linkage is the development of science parks' involving partnership between a university and a leading industrial or commercial investor. The science parks provide highly valued consultancy services and technology transfer facilities. They are in the forefront of the latest development and active in new science and hi-tech. American universities also encourage their academics to set up their own enterprises based on their R & D work.

In India this is yet to begin. The Department of Science & Technology, Government of India, started a programme called STEP (Science and Technology Entrepreneurship Park) whereunder entrepreneurs are attracted to start industrial activities and the basic infrastructural facilities are provided by the universities/colleges.

It seems the mutual benefits of the linkage have yet to be conveyed to the industries as too few of them know what higher education institutions can uniquely offer to them. It is a two-way process and both universities and industries have to continually interact. It is necessary to represent industry and commerce in higher education at different forms, e.g., Boards of Studies, various kinds of management committees, Executive Council, etc. This is perhaps essential for the reform of higher education functioning. But for all this to work effectively, we need more of outside academic people to devote time to educational responsibilities at various stages of their career. It is then for the institutions to ensure that they put the time of their collaborations to most effective use.

What would then be done by the universities and colleges? To start with they can initiate dialogues with industries, research funding agencies of various government departments, research institutions and commercial establishments and come to some understanding as regards the scope of collaboration. Thereafter joint groups may sit to chalk out the modus operandi. If it is decided to set up a joint centre, institution or laboratory at the University Campus, it will be necessary to provide it full autonomy. Already there are some autonomous institutions at the university like the Mass Communication Centre at Jamia Millia Islamia, Nuclear Science Centre at the JUN and the Rangapur Observatory at the Osmania University.

While the universities are autonomous institutions they have not yet provided desirable autonomy to its departments and colleges and in the circumstances they themselves bear the ever-increasing load of administration, course designing and curricula, examinations and disciplinary matters. Many departments of universities can go on their own if given the necessary freedom in administrative, academic and financial matters. A move has been made by the Bombay University, for example, in giving autonomy to its Department of Chemical Technology and the Jamnalal Bajaj Institute of Management Studies. The UGC is framing guidelines for autonomous departments with the help of a committee, as it has done in the case of autonomous colleges.

It is well known that many of our colleges have good potential for development if they have the freedom to initiate and implement educational programmes which they think to be in the best interest of the society. The affiliating system does not allow the required freedom to the colleges to meet the demands expected by the society from them. The academic decisions need quicker pace for making innovations and designing curricula and methods more relevant to the area in which the institution works. Given autonomy, the teachers and students of a college can make innovations, use their creative talent and collaborate with outside institutions more

(Continued on page 17)

Convocation

CHANGE AGENTS

"You cannot go in as normal input into the system which is already designed and you are going to fit in. You must go in as change agents for change which is geared towards tomorrow. You must create new work environment, new work standards, new work ethics, new work ethos, only after that kind of concern, you will be able to make a contribution", said Shri S.G. Pitroda, Adviser to the Prime Minister on Technology Missions, Government of India while delivering the Convocation Address at the second convocation of the Birla Institute of Technology, Mesra, Ranchi. He however sounded a word of caution when he said "It won't take more than five years in the system we have for you to loose your initiative and I urge you to be on guard every minute. I urge you to be on guard in every opportunity you get to make sure that you remain change agent. Your success is going to depend on your ability to remain as a change agent with fresh mind and fresh thinking". Excerpts.

Agriculture has been one of the important success stories of our time. Inspite of the drought last year we didn't have to import any food in 1987-88. That speaks for the professional in agriculture that we have been able to produce in our country. Similarly, we have had our success stories in Space, Atomic Energy, some other areas but inspite of all these success stories, we continue to remain concerned about poverty. Some of these successes have not been able to reach 300 million people who are below the poverty line. We have not been able to make a dent to our satisfaction in improving standards of living for millions and millions of our countrymen.

We had in 1987-88 National Missions on Drinking Water, Immunization and Literacy. It is a national shame for all of us that 250 thousand of our children get Polio in 1986-87 inspite of all our technological capabilities. Inspite of all our knowledge, we have not been able to address some of these key issues, in our Society. Our success stories, though few, ought to give us a lesson to tackle our future programmes. As you get out of the colleges and are ready to tackle the practical world, you will find that the world is quite different from what you have been used to on Campus. It is going to be very competitive, it is not going to be very real in terms of what you have had been experiencing. To some extent it is going to be cut throat, to some extent it is going to be wide open. It is going to be rigid at the same time it will have room for you to function. This world of tomorrow is waiting for technological solutions. Not to say that the technology is the only answer to handling our problems but since we are talking about technology, we are at an Institute of Technology, we have to focus on technology and not on politics and social consciousness. Political framework, motivation, mobilisation of resources, are all going to play an important role. However, two or three technologies of tomorrow will definitely shape the future we are going to have for ourselves and for our children. Biotechnology is one which will have far reaching implications in agriculture, health, environment, water so on and so forth. Another one is information which will again have far reaching implications in improving productivity and efficiency, in linking variety of services as major infrastructure of tomorrow and hopefully, information would be an agent of social transformation. Energy, alternate energy, is going to be equally critical. Today we are looking to solar energy as the ultimate answer. We still don't have the solutions and the world is waiting for you to explore the answer to many of the problems, we have not been able to find. These kind of technological scenarios will have to be based on self-reliance where you begin to do your own thing, you begin to find answers based on what we need in this country and you begin to create jobs as opposed to take jobs from people. During my informal interactions with students, I find that the major concern has been jobs. "Now that I have graduated what am I going to do ? Where am I going to find the jobs?" Some leave for foreign countries in an effort to explore unknown abroad, some stay at home, some continue to study, some work for private companies, some look for Government shelters.

some very few in fact, become entrepreneurs. What we need in our system is more of our people who would create jobs as opposed to take jobs. As you come out of the University environment your options are either hard options, or soft options. Soft option is what everyone goes for. Hard option is one which requires you to create jobs and not take something away from somebody. In these kinds of technologies that I mentioned earlier lot is to be explored. Innovation is waiting for you to be there. Innovation is waiting for you to explore lot of new ideas, new products, new services suitable to our needs, suitable to our environment and badly needed for our people, badly needed to provide basic infrastructure whether it is water, health services, shelter, clothing, food or whatever and also badly needed to line up scenario for the next 25-30 years to come. The work environment is going to be your biggest bottleneck.

As you go into the work environment, you will find that the systems are very hierarchical and you are used to an egalitarian system in friendly environment. Though you had experience of hierarchy at home, to some extent experience of hierarchy at the University with your professors and all but to a larger extent in your friends circle you have had egalitarian system. All of a sudden in the work environment you will find absence of agalitarian environment. You will be puzzled by the hierarchical system which will demand certain respect, certain discipline from you which itself would be detrimental to the progress that you are going to plan for yourself. So you need to go to all these organisations as change agents. You cannot go in as normal input into the system which is already designed and you are going to fit in. You must go in as change agents for change which is geared towards tomorrow. You must create new work environment, new work standards, new work ethics, new work ethos, only after that kind of concern, you will be able to make a contribution. You are coming out, very fresh, open, sincere, honest, if you are not careful, in five years, you will be corrupt. Your minds would be corrupt and you won't be able to think the way you are thinking today. It won't take more than five years in the system we have for you to loose your initiative and I urge you to be on guard every minute. I urge you to be on guard every opportunity you get to make sure that you remain change agent. Your success is going to depend on your ability to remain as a change agent with fresh mind and fresh thinking. As you begin to get sucked into the system, you will begain to loose the strength you have. You begin to loose the contribution you will be able to make. I know these are some heavy words, heavy advices. I am not here to advise you. I am here to share with you my concern. In the system we have don't complain. Complaints don't do any thing. You will have road blocks after road blocks, you will have bureaucratic road blocks, you will have political road blocks, you will have financial road blocks, you will have road blocks from the family, friends. Road blocks are there for you to solve. Unless and until you take the initiative and begin to work in the existing environment, you will not be able to appreciate the challenge ahead of you. You will always have financial constraints in whatever you are trying to do. The day we will not have financial constraints we will cease to remain a developing society. Every sector you go in, every job you will undertake, you will have financial constraints. You will have to learn to live with it. This is going to be a way of life for you for next 25 years to come atleast.

The system which is based on patronage, you will damn and you will want to change it based on the performance and the system will react. You will have to be tuned to the patronage on one hand to move forward with the performance criteria. You are as change agent going to show the system what performance is all about.

We look to you as a society to help us give new direction. We look to you to set new standards, new path, new goals, as a generation. It is your generation that is going to make the difference. I would like to close by saying that there are lots of challenges ahead of you. At the same time there are lots of roadblocks ahead of you. Don't get discouraged. World is tough but I know you can solve it. We have great deal of confidence in you based on what you have achieved on Campus and based on what you are going to achieve in future for all of us. We need your desire, burning desire, to make a contribution. We need your energy, we want to channelise your energies to something fruitful, something meaningful for all of us. You must focus on self-reliance. You must focus on being a change agent. The future world that we all live in will depend on how you are conscious of your contributions, cognisant of the fact that your contribution today will shape the future for you and for your children. We look to you for help and with confidence, we wish you all the luck in the future. We are here to support you but you have to make it happen. □

International Workshop on 'Future Studies'

A 10-day International Workshop on 'Future Studies' was organised at Inter-University Centre for Postgraduate Studies, Dubrovnik, Yugoslavia by the World Federation of Future Studies (WFFS) from March 28 to April 8, 1988. Over 25 academicians, researchers and government officials from Belgium, Bulgaria, Denmark, Ethiopia, Finland Holland, Hungary, France, Germany, India, Italy, Mexico, Norway, Poland, Sweden, Switzerland, U.K., USA and Yugoslavia participated in the workshop. Professor Jim Dator, Secretary General (WFFS) of University of Hawai, conducted the workshop.

The major objective of the workshop was to sensitize the researchers and policy makers about the concern for the well being of the future generations who are not participating in the decision making process and whose interests are not properly protected in the developmental activities of the present generations. The workshop was therefore geared to stimulate thinking among the masses to facilitate change in attitude towards meeting the future challenges. To achieve this objective, a multi-dimensional approach comprising lectures, group discussions, panel discussions and brain storming sessions was pursued. The deliberations generated a fund of ideas for scanning of the futures scenario, the search for the alternative action plans and implementation strategies to be adopted and executed by the policy planners throughout the world. The exercises in futures scenario building are essential for a long term perspective planning for an integrated socio-cultural and economic development of a country. In this context, the role of education in general and higher education and research in particular, is of crucial importance from the points of view of both moulding the attitude of people to change and shaping the future in desirable direction as well as designing appropriate policy instruments to attain the desired goals.

The essence of future oriented education and policy formulation lies in the fact that whatever we do today, by way of allocation of physical and financial resources, innovation and/or choice of technology, re-organisation of social activities, and reorientation of regulatory measures, have important implications for the social and economic well being of the people in future. It is therefore imperative to make a critical and objective assessment of the strengths and weaknesses of various national systems and discern the patterns of change so as to ensure that the developmental efforts are adequate and in the right direction.

The courses in future studies or futurology provide the framework and a rational approach to scan and map out the future course of action so as to improve upon the socio-cultural and economic environment and to lay the foundation for creating a prosperous and just society capable of contributing to world civilization, culture and knowledge. The realization of such goals is however not easy since it is difficult to carry out experiments about future or accurately make a quantitative measure of such aspects that have not occured as yet. Nevertheless, it is feasible to foresee and identify a number of alternative and possible futures on the basis of objective analysis of phenomena of changes such as social, cultural, economic and ethical values, long term policies for development, statutory and legal regulations for harmonious social behavior and action, etc. Such factors are conducive to judging possibilities that are likely to occur. Studies in future are thus a powerful planning tool. Its application gives vital clues to assessing the performance and results of certain policy instruments in the foreseeable future. Futurology also helps in identifying future opportunities and judge in advance, the likely future threats. The identification of such future events provides long term perspective on economic and social development and provide the basis for the planners to avoid future threats and to explore new opportunities for protecting the interests of future generations.

The workshop discussed in detail the methodologies that are employed for scanning future. As future studies are interdisciplinary subjects, a number of approaches can be made use of. Research techniques are drawn from physical, statistical, mathematical and social sciences disciplines to build quantitative and qualitative future scenarios for sectoral development. There is hardly any acceptable research technique which can be employed uniformly among various countries having varying socio-cultural milieu and stages of economic and scientific developments. The participants were however agreed about the prospects of development in research activities pertaining to future studies everywhere. With the continuing research efforts of educationists, scientists and social scientists especially the members of the World Federation on Future Studies, futurology would emerge as an important subject of study. The workshop emphasised the need for orienting all the developmental policies from the futuristic viewpoints, lest the attempts to underscore short term gains impinge upon the long term gains of future generations who are not currently participating in the decision making process of development for protecting their interests.

The workshop urged upon the community of academicians, policy planners and researchers to generate new ideas, search new options, create and develop alternative and/or redesign the old institutions and modify existing practices so that human society could be continuously improved and strengthened.

Of the various themes discussed at the workshop, some of the important ones are Future studies and everyday life in 21st century, From Information Society to Interaction Society, Futures Labs, Everyday life in East European Countries, From content to Form—A cultural society, General Evolutionary Impact on everyday life, The Technology of the Future, Girls and Women in 21st Century, and the Role of Women in everyday life and the Future. Shri M.M. Ansari, Project Director, Research Cell, AIU made a presentation on 'The Indian scenario for 2000 AD'. Some of the important conclusions that emerged in the presentation are as follows :

(i) Even though India has been able to produce more foodgrains than its total population actually requires, as our buffer stocks would suggest, about 40 per cent of people are still below the poverty line and the absolute number of poor people are continuously rising at the rate of about 3.7 million per annum. India would continue to produce foodstuff in 21st century more than what its people require but in the absence of efficient and equitable measures for providing employment to poor and for distribution of foodgrains, it will have more people below the poverty line in 2001 than it had at the time of independence. This indeed calls for multidimensional approach to deal with the complex problem of poverty so as to begin the new era of 21st century with the properly fed people.

(ii) The growing number of illiterates is another serious concern for the planners in India. While the literacy ratio has improved from 17 per cent in 1951 to about 40 percent in 1985, the absolute number of illiterates has increased from 300 million to 450 million during the same period. It is likely that of the total illiterates population in the world, more than 50 per cent would be found in India by the year 2001. This phenomenon of growing illiteracy has occurred in spite of the constitutional commitment to universalise elementary education by 1960, which has been re-set for the year 1990. On the present reckoning of educational policies, and more importantly, the implementation strategies, there is seemingly no hope for realizing 100 per cent literacy even by 2010 A.D. This qnantitative assessment calls for vigorous attempts to liquidate illiteracy.

(iii) On the basis of projected rates of growth of population at 1.8 per cent and GNP at 5 per cent, per capita income of India would be less than 400 US dollars by 2000 AD which would be much lower than many developing countries. As the twin problems of poverty and illiteracy have augmenting effect on each other, there is need to launch integrated programmes to tackle these problems simultaneously. It hardly needs to be pointed out that simultaneous existence of poverty and illiteracy has been causing considerable wastage of physical and financial rosources in the Indian economy. Even though the capital formation in the Indian economy has been at the rate of 5.5 per cent over the last three decades, the increase in per capita GNP was less than 1.5 per cent per annum. One of the attributable reasons for the low rate of increase in income is that the capital investments have been managed and administered largely by illiterates, semi skilled and inadequately trained personnel. Even now, more than 70 per cent of labour force in Indian economy comprised illiterates and unskilled population. Such factors generate inefficiency and lower the level of productivity which in turn dampen growth of the economy. It is for this reason that capital output ratio has increased from 3.5 : 1 in the IInd and IIIrd Five Year Plans to 6 : 1 in the VIth Plan. This means that in order to generate one rupee the amount of investments has increased from 3.5 rupees to 6 rupees over the plan periods. The implication for education system is to provide for skilled and trained manpower so as to increase productivity and production in order to accelerate the pace of development. This is indeed a challenging task for the Indian education system.

(iv) India is a relatively young country as about 42 per cent of its population is below 35 years. With the growing base of elementary and secondary education, the demand for higher education which is already very high, will rise in future even at a faster rate than is currently observed. It would therefore require expansion and diversification of educational institutions so as to meet the growing demand for higher education. In the absence of adequate allocation of financial resources for infrastructure facilities, as has been the case in the past, the problem of enhancing the quality and improving the relevance of higher education might aggravate. As a consequence the number of university graduates seeking employment would multiply and increase considerably by the year 2001 since the projected slow pace of development of the economy would not be able to absorb them. If this situation occurs, the incidence of wastage of resources on account of both investments on education of unemployed graduates and their maintenance at subsistence level would be substantial as they would hardly contribute to income generation process of national development. Rather, the growing frustration among them might increase the social tension, affecting thereby, political stability in the country. It follows, that the task before the Indian higher education system is indeed stupendous since the system is responsible for identifying socio-economic problems and suggesting solutions thereof for speedy development of the country. The plans to tackle the emerging problems should begin now, lest the dimensions of social unrest should acquire unmanageable proportions.

(v) In the context of responsibilities of higher education towards social and economic needs of the country, the issues pertaining to growing urbanization and pollution hazards, environmental degradation, rural-urban socio-economic disparities, increasing requirements for health care and shelter were also discussed. Keeping in view the inherent strength of Indian culture and philosophy of pursuing the path of development through mixed economic system, democratic and federal polity and secular traditions, it was concluded on an optimistic note that on realization of existing potentialities India would emerge a strong society which would continue to occupy a place of prestige in the community of nations and contribute to the world civilization. The system of higher education and research has however great deal to do in this direction especially by way of providing a set of policy options and alternatives to development.

The workshop expressed an urgent need to orient and interduce relevant courses on future studies at the graduate and post-graduate levels in every country. Institutions of higher learning should be encouraged to organise seminars/conferences and training programmes on future studies in various subject areas so as not only to acquaint the participants about the imperative need for promoting studies in future but also training adequate number of teachers and researchers for undertaking similar tasks in future. ☐

Financial Administration in Universities

The Association of Indian Universities in collaboration with the University Grants Commission and the University of Poona, organised a Group Discussion-cum-Orientation Programme on Financial Administration in Universities from June 6-10, 1988 at Pune.

Dr. D.M. Nanjundappa, Vice-Chancellor, Bangalore University inaugurated the discussion. He briefly outlined the various constraints of university finance and its administration. He also highlighted the lack of resources and funds for the development of universities as also the lack of a rational framework for financial administration. He suggested that there should be a scientific link up between financial administration and the university bodies so that there is an integrated result-oriented financial administration. He also referred to the vagaries of State-University financial relations in the determination of grants. He pleaded for better University Grants Commission and University relations. He said that the grants should be regularly released to educational institutions and financial benefits should be equally shared by the universities. He wanted the universities to explore alternative sources of funding. He pleaded for the creation of endowments and liberal tax concessions for educational purposes.

Shri J. Veera Raghavan, Secretary in the Ministry of Human Resource Development, Govt. of India, in his valedictory address, emphasized the role of Finance Officers in spending as well as raising of resources. He was of the view that the financial management procedures should be flexible and conducive to the efficient functioning of the universities. The institutional objectives should be achieved at all costs. The managers of finance have to be watchdogs of public funds and at the same time should boost the morale of the Faculty.

Dr. V.G. Bhide, Vice-Chancellor of University of Poona in his Presidential Address said that there should be no disparity in the funding of the universities. Government should encourage the industrialists to provide additional financial resources. He referred to the establishment of the Science and Technology Parks and the Consultancy Services rendered by the faculty members.

The meeting of 43 Finance Officers from different Central and State Universities gave an opportunity to them to interact with each other and share their experiences. The Guest Speakers spoke on different topics ranging from financial administration, managerial effectiveness, need for computerization, budgetary reforms and zero based budgeting, effective utilization of resources etc., which were followed by lively and indepth disscussions. ☐

CALENDAR OF EVENTS

Proposed Dates of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
June 27-July 8, 1988	Short-term Intensive Training Programme on Abstracting & Indexing	To train the participants in the application of abstracting and Indexing methods and construction of an indexing language (Thesaurus).	National Institute of Small Industry Extension Training, Hyderabad.	Mrs. K. Subhashini, Course Director, NISIET, Yousufguda, Hyderabad-500045
July, 12-14 1988	International Symposium on Recent Advances in Male Reproduction	The Symposium will focus on Molecular Biology of Inhibin, Androgen Binding, Protein Regulation of Fertility, Peptides in Testis Function and Steroidogenesis in Testis.	University of Hyderabad in collaboration with the Indian Society of Andrology.	Prof. P.R.K. Reddy, School of Life Sciences, University of Hyderabad, Hyderabad 500134
September 26-28 1988	International Conference on Welding Technology in Developing Countries	To provide an opportunity to scientists and technologists from developing and advanced countries to share their experiences in the area of Welding Technology.	University of Roorkee, Roorkee.	Prof. P.C. Gupta, Organising Secretary, International Conference on Welding Technology in Developing Countries, Department of Mech. & Ind. Engg., University of Roorkee, Roorkee-247667
October 27-29, 1988	National Seminar on Statistics in Medicine, Health and Nutrition.	To discuss Data-Base and Analysis in Health and Nutrition—Present and Future.	Department of Statistics, National Institute of Nutrition, Hyderabad.	Dr. K. Visweswara Rao, Organising Secretary, National Seminar on Statistics in Medicine, Health and Nutrition, Department of Statistics, National Institute of Nutrition, Indian Council of Medical Research, Jamia Osmania, Hyderabad-500 007
December 13 17, 1988	International Seminar on Education and Training in Water Resources in Developing countries.	To assess the requirements of manpower, education and training in Water Resources Sector upto the year 2025 in the developing countries.	Central Board of Irrigation and Power, New Delhi.	Mr. C.V.J. Varma, Organising Secretary, International Seminar on Education and Training, Central Board of Irrigation and Power, Malcha Marg, Chanakyapuri, New Delhi-110021
Dec. 15-17, 1988	National Conference on Fluid Mechanics and Fluid Power	To provide a forum for exchange of information on topics in fluid mechanics and design, research and development activities in areas like power generation, aerodynamics, fluidics, biomechanics, etc.	Harcourt Butler Technological Institute, Kanpur.	Dr. N.L. Kachhara, Organising Secretary, 16th National Conference on Fluid Mechanics and Fluid Power, Mechanical Engineering Department, Harcourt Butler Technological Institute, Kanpur-208002

Folklore Centre at Telugu Varsity

The Telugu University is planning to set up an exclusive centre for folklore, to study and conduct research in folk literature and folk arts alongwith other genres like lyrics, games, beliefs and customs. This was disclosed by Prof. T. Donappa, VC, while delivering the presidential address at the inauguration of International Workshop Series on Folkloristics. He said that the University would further develop an archives in folklore to preserve folklore texts by utilising modern technology like audio and video tapes. In addition, the University would also equip scholars with modern tools of research which had been tested elsewhere with a view to give a fillip to folkloristic research in the country.

Inaugurating the workshop, Dr. R.V. Vaidyanatha Ayyar, Principal Secretary, Education, opined that cultural dissemination in the country would be possible only through integration of folkloristics with modern electronic media. He felt that effect ive communication with the rural masses could be achieved through the usage of folkloristics.

Mr. Justice P. Jaganmohan Reddy, former Supreme Court Judge, while emphasising the importance of folkloristics said that folklore material formed the basis for building up the cultural history of mankind. He said that the changes in man's behaviour, beliefs and customs since times immemorial had been recorded in folklore through songs, tales, myths, riddles and proverbs. By studying this discipline one can extract a clear picture of the culture of the Universal man, he added.

Justice Jaganmohan Reddy pointed out that folkloristics was the study of ancient observations, customs, notions, myths, beliefs, superstitions and prejudices among common people. But today the radio and television coupled with urbanisation and industrialisation has shifted the centre from villages and rural areas, from common folks to the urban elite.

Summer Institute in Asian Studies

The SNDT Women's University in collaboration with the United States Educational Foundation in India (USEFI) has been conducting Summer Institutes in Asian Studies Programme since 1976 for the visiting American school and college teachers. The 8th Summer Institute is being organised from 25th June to 30th July, 1988 for a group of teachers from the New York University.

The Summer Institute will give an opportunity to American teachers to know India and her civilization at closer quarters yet in an objective manner. The purpose of the programme is to help these teachers prepare educational projects for teaching history and culture of India, in American schools. The experience and the knowledge gained at this Summer Institute, would help teachers in developing curriculum for Asian (Indian) Studies Programme in their country.

The course at the Summer Institute consists of a series of lectures, demonstrations, discussions and field trips. The teacher trainees at this Institute will have an opportunity to hear experts from different fields on various aspects of Indian life—History, Culture, Arts, Literature, Economy, Politics, Social Structure, Status of Women, etc. While organizing the programme, care is taken to focus on recent developments in India, with a view to provide the teacher-trainees an insight into contemporary life and society here.

The teacher-participants in this programme shall have access to library facilities and services at the Women's University Library. A Book Shop-India is being organised by the University Library on this occasion. Consultation with faculty members of various departments of the Women's University is made available to the teachers for their guidance of their individual educational projects related to society and culture of India.

Dr. Dhairyabala Vora is directing the programme and Dr. Lata Murugkar is assisting her as the Co-Director.

AP Varsities Plan New Engg. Courses

The Andhra Pradesh Government proposes to start full time B.Tech. Degree Courses exclusively for diploma holders at the existing polytechnics in Kakinada, Hyderabad and Ananthapur. This was announced by the State Technical Education Minister, Mr. D. Satyanarayana. He said that an expert committee, under the chairmanship of Prof. Koteswar Rao, Principal, Regional Engineering College, Warangal was being constituted to examine the feasibility of starting 3-year full time B. Tech Degree Courses in the three polytechnics. The study would be made with reference to the norms and conditions stipulated by the All India Council for Technical Education.

The Minister said that the

Vice-Chancellors of different Universities, with whom he had a meeting recently, had agreed to issue notification for admission into 4-year part-time Degree Course in University colleges and 3-year full time degree course in private engineering colleges. The diploma holders would be entitled for admission into these courses. The admission notification would be issued shortly.

The Vice-Chancellors had also agreed to enhance seats at the rate of 10 in each branch of civil, mechanical and electrical engineering. They also agreed to examine the need to enhance the seats in electronics and communications engineering also.

The Vice-Chancellors Meet has also agreed to examine starting of correspondence - cum - contact Degree courses in chemical engineering and computer engineering in Andhra University and Metallurgy in Regional Engineering College, Warangal.

The Vice-Chancellor of Jawaharlal Nehru Technological University agreed to increase seats in correspondence - cum - contract Degree Courses of electrical, mechanical, civil, and electronics and communications engineering courses offered by JNTU.

It was also agreed to examine the scope of admitting non-engineering diploma holders in Diploma in Commerce and Computer practice, dress-making and costume design, diploma in domestic science, diploma in hotel management, catering and food technology, etc. into B.A., B.Sc., and B.Com.

Seminar on Commerce Education

A two-day Seminar on Commerce Education and Accounting Profession was organised at the Kurukshetra University on May 12-13 under the joint auspices of Department of Commerce and the Institute of Chartered Accountants of India, New Delhi. About 100 teachers of commerce from various colleges of Haryana and forty teachers from commerce faculties from different universities attended the seminar. The topics discussed at the seminar included (i) Commerce Education at undergraduate level, (ii) New Developments in Accounting, (iii) Coordination between the Institute of Chartered Accountants of India and Universities, and (iv) Accounting standards.

New Courses at Kurukshetra Varsity

The Kurukshetra University proposes to introduce a three year degree course in Physical Education, Adult Education and Sports in its affiliated colleges from the current session 1988-89. A two-year course in M.Sc. (Electronics) is also proposed to be started from the next academic session.

The university also propose to start Postgraduate Departments in Tourism, Geology and Anthropology from the ensuing session. Diplomas in Personnel Management and Marketing will also be started in the university and in some affiliated colleges.

Kuvempu Varsity to Start PG Courses

Kuvempu University proposes to start postgraduate courses in English, History and Archaeology, Political Science and Sociology, Theoretical Physics, Electronics, Zoology, Botany and Ecology from the academic year 1988-89 on its new Shankaran Ghatta campus at B.R. Project.

According to Dr. Shantinath Desai, Vice-Chancellor, the Mysore University would conduct major examinations on behalf of Kuvempu University during the next five years but postgraduate and engineering (semester system) examinations would be conducted by Kuvempu University from the current academic year.

Andhra Varsity Offers New Courses

The Andhra University has decided to introduce three New courses, viz., BE (Naval Architecture), M.Tech (Remote Sensing) and M.E. (Electronics and Instrumentation) from the current academic session. This was revealed by Mr. Gopalakrishna Reddy, Registrar, recently in Visakhapatnam.

Central Aid for Tribal Research

Prof. S. Agesthalingam, VC, Tamil University, said that the Union Government had sanctioned Rs. two crore for establishing a museum and providing other facilities at the university's tribal research centre. He made this announcement while inaugurating a summer course on "inter-disciplinary research methodology in study of tribal communities". He said the government had sanctioned Rs. one crore for a period of five years to the university for research work.

Thirty four persons, including six women are participating in the 41-day course, which is being conducted by the Tamil University under the sponsorship of the University Grants Commission.

News from Agril. Varsities

Workshop on Dryland Agriculture

The Central Research Institute for Dryland Agriculture (CRIDA), Hyderabad in collaboration with Sher-e-Kashmir University of Agricultural Sciences and Technology, organised XII Workshop on All India Coordinated Research Project for Dryland Agriculture at Srinagar from 25th-29th May 1988. Scientists from various centres of CRIDA, Hyderabad (ICAR), Agricultural Universities and ICRISAT interacted and presented their work, besides, evolving futuristic plans for overcoming effects of drought conditions. They also drew out contingency plans to mitigate effects of recent drought in dryland areas based on zones under specific conditions of country.

Inaugurating the workshop, Dr. Farooq Abdullah, Hon'ble Chief Minister of Jammu and Kashmir State stressed upon scientists to work whole heartedly irrespective of caste, colour and religion for the betterment of our 80% population living in villages. He was critical that despite huge expenses on development programmes, country has not made cognisable breakthrough in agriculture. He said we were still dependent on 'Monsoons' while a lot of money has been sunk in major and medium irrigation projects since the commencement of planned development in India. He stressed the need for long term measures in mitigating effects of drought by developing economically feasible technology.

Prof. A. Ahmad, Vice-Chancellor, of Sher-e-Kashmir University of Agricultural Sciences and Technology stressed the need for development of dryland agriculture based on farming system which should include forestry, horticulture, fodder, animal husbandry besides the coarse grain instead of the present trend towards development of crops requiring more water. He emphasized the need of sincerity and devotion on the part of scientists and said that they should not be carried away in today's society infested with economic and political ills.

Founding-father of dryland agricultural concept in the country, Dr. J.S. Kanwar, currently Professor Emeritus ICRISAT and former Deputy Director General, ICAR also participated in the Workshop. His presence served as an incentive to participating scientists whose achievements were highlighted at the Workshop.

During the 5-day deliberations of the workshop it was pointed out that 31 model watersheds have been developed in various parts of the country that had proved effective. Besides, foreign collaboration has also become handy for betterment of agriculture management in dryland areas. Progress made under Operation Research Projects and Watersheds has indicated that 14 watersheds out of 31 established so far, have already achieved their targets. It was heartening to note that in some of the severely drought affected areas, 60-80% area could be sown in watersheds located in such regions whereas 50-80% cultivated area was left unsown in adjacent non-project areas.

Several thrust areas were identified and it was suggested that each centre in the dryland area will concentrate on such programmes besides their normal work on priority basis. First amongst important programmes is characterisation of environment of each centre of region i.e. collection of climatic information for last 30 years or more, its consolidation, analysis and evaluation, besides, characterisation of soils of the centre. This will serve as a guiding factor for a zone represented by that particular centre. Next priority has been attached to critical analysis of data already available at CRIDA and its documentation. These two activities are essential for developing future research in a specific zone.

Under research priorities prime importance is given to formulate and implement long term studies to mitigate drought effects, selecting varieties of crops, efficient use of fertilizers, dry seeding, harvesting of water or life saving water utilisation and recycling of water at all centres. It was also decided to study rainwater management involving land treatment for moisture conservation. It will also include study of vegetative barriers, though this study has been taken-up about 2 years ago in some centres but more centres will undertake such study.

Another aspect, which is considered for implementation, is that of management of cropping system. It has been observed that there is monocrop system usually practised in the drylands but double cropping and inter-cropping systems have to be developed depending upon resources of each region. Studies are to be directed towards development of technology for establishing second crop to ensure success of subsequent crop which will include fertilizer management, weed control in double cropping systems. In the inter-cropping systems research will be directed towards weed control, varietal compatibility of intercrops and efficient use of fertilizers. Stress will be laid for development of fodder based cropping systems so that good fodder will be available for cattle during drought conditions.

Feasibility of developing agroforestry system in dryland agriculture has also to be looked into and such trees could be located which can grow in symbiosis with crops besides providing land cover and improving ecological environment. Development of horticulture and management of cattle resources based on agropastoral system has also to be considered in the dryland zones will undertake such research programmes.

In the plenary session, Prof. A. Ahmad, who presided, observed that development of drylands should also keep in mind development of eco system and change of food habits in these regions.

New Grapes Hybrids

The Indian Agricultural Research Institute (IARI), New Delhi, has evolved new hybrids of grapes, which can give a fillip to grape cultivation in North India. The new hybrids not only produce early ripening berries of uniform maturity and excellent quality for table purposes, but also have a good potential and can bring about a "significant improvement" in the grape processing industry.

Dr. A.M. Michael, Director, IARI, said the new grapes hybrids were selected keeping in view their economical cultivation and the socio-economic condition of growers in the North.

Solar Powered Cargo Vehicle

Two engineering students of Kerala University are reported to have developed a prototype solar-powered cargo vehicle suitable for airport and industrial use.

"Suraya Vahan", as the vehicle is called, was designed and built by Sushil Eapen and Vikas Khitha of the Trivandrum Engineering College with the assistance of the solar engineering group of the Electronics Research and Development Centre. It is claimed to be the first solar vehicle in the country intended to take cargo.

The present model is a three-wheeled vehicle, able to carry about two tonnes of cargo. The eight photovoltaic panels form a canopy over the luggage area. In bright sunlight, these panels deliver about 330 watts. The panels would then need four hours to recharge the batteries for every hour the vehicle was used. If the solar panels could not function, the four standard truck batteries, fully-charged, would be able to run the vehicle for upto two hours, it would then have a range of around 20 km. AD.C. series motor, drawing power from the batteries, drives the front wheel which is also used for steering.

The vehicle was designed to move cargo at airports. With solid rubber tyres and no suspension, it needs smooth surfaces to operate. Since the vehicle will be out on the tarmac where it will get sunshine, the batteries will be charged automatically. With a maximum speed of ten km per hour the vehicle could be used even in factories for moving cargo.

Electric motors score over internal combustion engines in being far more silent and doing away with smoke and fumes. The electric motor's higher starting torque makes it suitable for start-stop conditions.

According to Eapen anc Khitha the vehicle was made—afte six months of thought and on year of fabrication—for the fina semester project. The Departmen of Science, Technology an Environment had given a grant c Rs. 23,750. But that was n enough since the vehicle costs ov Rs. 1 lakh to make. ANERT su plied the solar panels which co about Rs. 28,000, the ERDC ga an old industrial truck which w souped up to provide the bas frame. Batteries were another hi cost item, coming to about I 15,000.

They said its present efficien was probably not enough to ma it a commercial proposition. I the efficiency could be impro in a variety of ways. Better sc panels (imported ones, for i ance, had much higher ene conversion efficiency than indigenous ones) was one such to improve. If lighter batte could be used, the vehicle i could be made a great deal li and, consequently, the e consumption, much less. M processor or thyristor speed co could be substituted for the re control used in this vehicle. added.

New Crop Varieties

Haryana Agricultural University scientists are reported to have evolved three new varieties of bajra, cotton and raya.

The new bajra, variety—HHB 60 matures in 76 dayas and is tolerant to downy mildew disease. Its yield is 9 to 10 per cent more than the HHB 50 variety released sometime ago.

The cotton variety HS 45 (American cotton) is suitable for early sowing. It matures in about 190 days. The yield of this variety too is 10 per cent more than other similar varieties now popular among farmers.

The raya variety RH 8113 has a maturity period of 150 days. The oil content of the new variety is also slightly better than the existing varieties. It is also resistant to several diseases.

News from Abroad

Proposals for Cooprative Projects

The Centre for Art, Science and Technology, a non-profit research and educational organization in Canada, is interested in cooprative projects with Indian researchers which might be eligible for support by the International Development Research Centre (IDRC) of the Canadian Government. The IDRC promotes scientific and technical research projects conceived and carried out by Third World researchers including collaborations between developing countries and Canadian private organizations.

The IDRC's funding mechanism is based upon a process which involves evaluation procedures of research proposals presented by institutions in the Third World. The fields which are eligible for financial and professional support include agriculture, health, social sciences, information sciences, earth and engineering, sciences, training and implementation of research results.

Further information can be had from Dr. P.Z. Hartal, Director, Center for Art, Science and Technology, P.O. Box 1012, St. Laurent, Montreal (Quebec) Canada, H4L 4W3.

Grants for Scientific Meetings

The Third World Academy of Sciences (TWAS) entertains requests for grants to support scientific meetings to be held in developing countries in the fields of Biological Sciences, Chemical Sciences, and Geological Sciences. The grants are made to encourage the organization of regional and international scientific conferences, workshops and special meetings in the Third World.

Scientific institutions and organizations in Third World countries organizing meetings in these countries may apply for grants to cover the travelling expenses of lecturers from abroad and/or young scientists from the region. Likewise, organizers of international conferences being held in developing countries may apply for grants to assist with travelling expenses of eminent scientists from developing countries, the expenses of principal speakers who are unable to obtain sufficient funds from other sources, or travalling expenses for young promising scientists from the region. Special consideration is accorded to meetings that are likely to benefit the scientific community in developing countries and to promote regional and international cooperation in developing science and its application to the problems of the Third World.

Last date for receipt of requests on prescribed proforma for meetings to be held during July-December 1989, is 1 December 1988. *Application forms and other details can be had from* The Executive Secretery, The Third World Academy of Sciences c/o International Centre for Theoretical Physics (ICPT) P.O. Box 586-34100 Trieste—Italy.

UNIVERSITY-INDUSTRY LINKAGE

(*Continued from page 6*)

fruitfully than in the present straitjacket system of affiliation. No doubt, more funds will be needed by the institutions to implement innovations and new programmes and this can be taken care of largely by the national apex bodies and partly by the industry and commerce.

But what an institution of higher education needs most is interaction, collaboration and formal linkage with the community around and other institutions, as well as employers and professionals in the field. They should change their perspective and style. The great philosopher, A.N. Whitehead had asserted "There is only one subject matter for education and that is life in all its manifestations". (The Aims of Education and other essays). The institutions of higher education should extend their field of activity and end their 'splendid isolation' from the industry and commerce. This would help them play their due role as agents of change in the Indian society.

NATIONAL INSTITUTE OF HYDROLOGY

JAL VIGYAN BHAWAN, ROORKEE

Advt. No. 7/88-NIH (Admn.) **Dated : 9th June, 1988**

Applications are invited for the following posts in National Institute of Hydrology (A Govt. of India Society) Roorkee from Indian Nationals satisfying qualifications and experience laid down therefor :

1. SCIENTIST 'E' : 5 posts in the areas of : **Conjunctive Use–1 Post, Hydrological Investigation-1 Post, Surface Water Hydrology-3 Posts :** (likely to be increased). **Scale of Pay :** Rs. 3700-125-4700-150-5000. Total emoluments at the initial of the scale is Rs. 4330 excluding H.R.A.

Age : Below 45 years.

Qualifications : 1. High Academic qualifications in Civil Engineering or Agricultural Engineering with specialisation in Hydrology or Water Resources, or equivalent OR High academic qualifications in Geology/Geophysics with specialisation in Hydrological investigations. 2. Ph. D. Degrees desirable. 3. Experience in Field Problems, Corporate membership in professional institutions desirable. 4. About 7 years experience in teaching, research, design or planning. 5. Proven ability of conducting and guiding research.

NOTE : 1. Persons selected can be appointed on deputation basis also.

2. SCIENTIST 'C' : 5 posts in the following areas: **1. Surface Water Hydrology–3 posts. 2. Remote Sensing Application–1 post. 3. Drought Studies–1 post. Scale of Pay :** Rs. 3000-100-3500-125-4500. Total emoluments at the initial of the scale is Rs. 3540 excluding H.R.A.

Age : Below 40 years.

Qualifications: For areas (1 & 3): SURFACE WATER HYDROLOGY/DROUGHT STUDIES : 1. A Bachelor's degree in Civil Engg. with minimum of 60% marks or 7.0/10.0 CPI or equivalent OR Master's degree with specialisation in Water Resources/Hydraulics Engg./Hydrology, with minimum of 60% marks or 7.0/10.0 CPI or equivalent. 2. 5 years experience of Design/Teaching, research in institutions dealing with Water Resources Area.

For area (2): REMOTE SENSING APPLICATION: 1. A Bachelor's degree in Civil Engg. with minimum of 60% marks or 7.0/10.0 CPI or equivalent OR Master's degree in Science with specialisation in Geology/Geophysics with remote sensing as a subject, with minimum of 60% marks or 7.0/10.0 CPI or equivalent. 2. 5 years experience of Design/Teaching, research in Institutions dealing with Water Resources Area.

Desirable : Ph.D. with Science/Engineering

NOTE: Persons selected can be appointed on deputation basis also.

The above mentioned posts carry usual allowances as admissible under the Central Government Rules. Age will be relaxable for persons already in service in the Institute and other Govt./Semi-Govt./Autonomous organisations as well as candidates belonging to SC/ST community, retrenched employees of Defence services and physically handicapped persons, as per rules of the Government of India.

Age will be determined as on 29.7.88.

Persons already employed in Govt./Semi-Govt./Autonomous Bodies should apply through proper channel. Application not forwarded through proper channel may not be considered.

Candidates applying for more than one post should use separate application form for each post and remit fees separately for each post.

Application forms may be obtained by **15.7.88** from Chief Administrative Officer, National Institute of Hydrology, Jal Vigyan Bhawan, Roorkee 247 667 (UP) by sending a self addressed envelope of the size 12 x 28 cms. Application form duly completed in duplicate with copies of all testimonials alongwith an application fee in the form of Indian Postal Orders of Rs. 8/- (SC/ST candidates are exempted from payment of fee) payable to the National Institute of Hydrology at the Roorkee University Post Office should reach the Chief Administrative Officer, National Institute of Hydrology, Jal Vigyan Bhawan, Roorkee-247 667 (UP) **on or before 29.7.1988**.

JOB LOCATION: ANYWHERE IN INDIA.

SW/NIH-2/88

Book Review

FRANK AND FORTHRIGHT

Mishra, R.S. How I faced an invited trouble, (Lucknow) Prakashan Kendra, 1988, pp. 143. Rs. 75/-.

G.B.K. Hooja*

The word "trouble" seems to denote the state of universities in India. It is certainly not a coincidence that Amrik Singh called his memoirs relating to the Punjabi University, Patiala as 'Asking for Trouble: What it means to be Vice-Chancellor'. I agree with him when he says that a Vice-Chancellor's job is one of the most demanding ones in the country. Ministers, bureaucrats, heads of business organizations, newspapermen all have diverse pressures and demands upon them, but they have a range of powers and ability to provide patronage. In the case of a Vice-Chancellor, the demands are greater, but his capacity to deliver is tightly circumscribed or controlled. It is a nightmare to find solutions for the conflicting demands and interests of the various wings forming the family of the university, namely teachers, employees, students, parents, not to mention politicians, who hold the pursestrings. The latter, and even the members of the Senate and the Syndicate, says Dr. Singh, are seldom present when any of the refractory wings of the university chooses to exert pressure. It is the Vice-Chancellor who is on the anvil to face the agitated, the angry and the violating, and yet receives no danger pay.

Mishra, too, had his measure of troubles, which called all his tact, maturity, sobriety, gamefulness, sense of humour, gained during a long course of academic life, into play and enabled him not only to survive, but survive with satisfaction and happy memories, which are recorded in this small book with characteristic candour and sympathy.

The book consists of two parts. The first part consists of 12 chapters on 'Officers and other Functionaries', and the second part consisting of 19 chapters relates to general matters, such as teaching, research, admissions, examinations and re-examination, halls of residence, Teachers' Association, Students' Union, Karmachari Sangh, campus maintenance, Tagore Library, selection committees, University Court, Executive Council, Academic Council, etc. Thus there is not a facet of university life which has not fallen under the purview of his penetrating but sympathetic gaze. He served as the Vice-Chancellor of Lucknow University from 1982 to 1985. In order, therefore, to make his memoirs serve a useful purpose, he decided to concentrate more on the problems of Lucknow University and present suggestions for their solution. However, since the problems facing the university system all over India are similar, the solutions suggested by Dr. Mishra have a national relevance and may be considered with respect by the managers of institutions of higher learning all over India.

Says Mishra, "Teachers form an integral part of university life. They are builders of nation and, therefore, should set an ideal before the students and the public. The students are their best judges and through their students, they are known in public at large, both for good or bad points. India had a tradition of respect for teachers. They were as much revered as parents or even as God... But all this is fast vanishing now. Having been a teacher for more than forty years, I have no hesitation in saying that the responsibility for this is more or less of the teachers themselves. It is for them to regain their respect by students and society."

As for his style of work, here is a vignette :

> "As a regular habit, I got up quite early in the morning. After I joined LU, I used to sit in my verandah right from 6 in the morning doing self-study. I preferred to meet visitors after 10 in the morning, but some teachers used to come to me even at 0600 hrs, sometimes with purpose and sometimes without it. Some teachers would come with something in their mind but would simply sit and go without expressing it. Every visitor expressed himself as my greatest supporter and well-wisher. Some of them sincerely wished to guide me whereas others tried to misguide me. There were a few teachers who gave the impression to other teachers that they were my right hand and I did as they wanted me to do. Teachers who believed them, started dancing attendance on them. However, such teachers were soon disap-

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**Former VC, Gurukula Kangri VV, Hardwar; 5, Abulfazal Road, New Delhi-110 001.*

pointed. With my long experience of different facets of university life in the DU, LU, AU, GU, JU, KU and BHU and a number of foreign universities, I soon realised how sincere a teacher was. But I encouraged meeting even insincere teachers because I could get a feedback from them in what was going on in different departments and offices. I could make out what they had in mind even when they were talking about differently. Though from morning to evening no time was mine or for my family, it was very rewarding to me."

This practice of accessibility and spirit of accommodation enabled him to manage the students equally effectively and affably. As the LU does not have a VC's residence, Mishra was allotted a room in the State Guest House to begin with. One evening when he returned to the GH after an official dinner, he saw 2 hearse cars standing on the road outside the GH. This set him having peculiar speculations. When he entered the gate, he saw about 100 youngmen squatting on the lawn. Realizing that they were waiting for him, he walked upto them. They were students of KGMC and hearse cars were easily and readily available to them. They had some examination problems. He called the Registrar and the Principal and had the matter sorted out. When he moved to 14, Kalidas Marg, the students of KGMC went there also twice at about midnight in hearse cars with their examination problems, which were duly sorted out. While going out, however, they carried his name-plate as a souvenir, muses the learned academician. He also records :

"Before I moved to Kalidas Marg I understand that I was being considered for a Type V quarter in the Raj Bhawan Officers Colony, where one of the former Vice-Chancellors of LU, Mr. Ashok Kumar Mustafi used to live. The residents of the colony objected to my being allotted the quarter, because they feared that if I lived there, the students would come in batches and in crowds and would disturb them. But now I am convinced that I would not have been a bad neighbour either because of my students or otherwise."

As may be anticipated, Mishra's reaction is typical of the man and his personality, mild, mellow, mature, although it may be noted in passing that matters have come to such a state that VCs are no more persona grata in good neighbourhoods. It goes to the credit of Mishra that LU had a number of events after several years, some after decades. Mention may be made of 3 of them. LU held a special convocation to confer the degree of Doctor of Literature (Honoris Causa) on Mr. Amadu Matar M-Bow, Director General of Unesco on Dec. 10, 1983. Then they had the annual session of ISCA, which was inaugurated by the President of India on Jan. 3, 1985. And the Convocation to confer the degrees, diplomas and medals of the exams of 1983 was addressed by the PM of India, Shri Rajiv Gandhi on March 23, 1985. In fact, the period between Dec. 10, 1983 and March 23, 1985 was celebrated as the Diamond Jubilee Year of LU, which was established in 1920-21. Mishra utilized this opportunity to concentrate on the academic side, as he found that the academic life in the University had received greatest set back. He encouraged seminars, symposia and colloquial talks in depts, besides debates and an Inter-University Drama Competition on 'Drinking and Drug Abuse'. The end of Mishra's tenure was climaxed by the celebration of the State level Youth Festival, Umang-85, in which 11 universities of the State participated.

In the Introduction to this book, Mishra refers to the Vice-Chancellor of a neighbouring state, who, while tendering his resignation had enumerated 3 qualities which a VC should possess, namely, (i) the brain of a monkey, (ii) the skin of a rhino, and (iii) the tongue of a parrot. The interested readers, the managers of the university system would do well to read this very frank and forthright account to find out how Mishra could continue for the full term in spite of the fact that he is not endowed with any of the above characteristics.

A welcome addition to the literature on higher education in India. May we hope that in the years to come many more of the tribes shall come forward to enrich this genre by recording their valuable experiences, bitter and/or sweet, in the field of higher learning, for the benefit of the policymakers and system operators.

We Congratulate . . .

(i) Dr. Chandan Badan Tewari who has taken over as Vice-Chancellor of the Meerut University.

(ii) Dr. P. Selvie Das who has been appointed Vice-Chancellor of the University of Mysore.

(iii) Dr. R.V. Ramakrishna who has been appointed Vice-Chancellor of the University of Agricultural Sciences, Bangalore.

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month, while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research scholars and students of education are welcome to use these resources. The Library is open from 9-00 a.m. to 5-30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

SOCIAL SCIENCES

Library Science

1. Anand, Virender Kumar. *Evaluation of literature in 'cancer' its treatment in various classification scheme and a proposal for special scheme of library classification.* Panjab. Dr. (Mrs.) Ranjana Vohra, Department of Library Science, Panjab University, Chandigarh.

2. Gupta, Neru. *Legal information system for India : A proposed model.* Panjab. Dr. H. R. Chopra, Department of Library Science, Panjab University, Chandigarh.

3. Jaspal Singh. *Effects of participative decision making process on staff satisfaction in Indian Universities libraries and its impact on library services and patrons satisfaction : A study using Merchant's performance measurement models.* Panjab, Dr. U. K. Tikku, Department of Library Science, Panjab University, Chandigarh.

4. Singh, Naorem Giridhari. *Personnel problems in library management : A study of the University and Post Graduate Centre Library in the North Eastern Region of India.* Manipur.

Psychology

1. Gujral, Supreet. *A study of personality and motivational correlates of type A behaviour.* Panjab. Dr. Meena Sehgal, Department of Psychology, Panjab University, Chandigarh and Dr. Anuradha Bhandari, Department of Psychology, Panjab University, Chandigarh.

Sociology

1. Batra, Jagdeep Kaur. *Factors of divorce and problems of subsequent adjustment : A sociological study.* Panjab. Dr. (Mrs.) Raj Mohini Sethi, Department of Sociology, Panjab University, Chandigarh.

2. Goyal, Radhey Shyam. *Caste inequaiities socio-culture and fertility behaviour : A study of selected village communities of Punjab and Haryana.* Panjab. Dr. S. R. Mehta, Department of Sociology, Panjab University, Chandigarh and Dr. G. P. Mehta, Department of Statistics, Panjab University, Chandigarh.

3. Meshram, Shiv Charan. *Jati evam pramparagat vyavsay : Balaghat Jile kee Koshti Jati ka samajshastriya adhyayan.* H.S. Gour. Dr. N. K. Gurha, Department of Sociology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

4. Munjal, Brij Mohan. *Social heritage of the Balmiki Ramayana and the Mahabharata.* Devi, Ahilya.

5. Pothan, K. P. *A sociological study of the impact of mixed marriages onfamily life, inter-community understanding and adjustment as well as national integration in India with particular reference to Madhya Pradesh. D. Litt.* Devi Ahilya.

6. Trivedi, Kiran. *Gramin samudayon ke samajik arthik vikas mein jansanchar madhyamon kee bhumika : Indore Jile ke sandarbh mein.* Devi Ahilya. Dr. (Smt.) S. Pothan, Department of Sociology, Govt. New Girls Degree College, Indore.

7. Zarabi, Dasy. *Knowledge of and attitudes towards population education : A comparative study of employed and unemployed women in a selected area of Chandigarh.* Panjab. Dr. S. R. Mehta, Department of Sociology, Panjab University, Chandigarh.

Political Science

1. Guite, Siamkhum. *A study of the changing faces of the Paite community.* Manipur.

2. Joseph, Shaji. *India's role in the search for a new international economic order : A study.* Kerala. Dr. G. Gopakumar, Lecturer, Department of Politics, University of Kerala, Trivandrum.

3. Mini, B. S. *Socio-economic status and political participation of women in Kerala : A study of Trivandrum District.* Kerala. Dr. D. Jayadevadas, Lecturer, I.C.C., Kariavattom.

4. More, Trambak Shivram. *Political strategy of Dr. Ambedkar from 1930-1950 : A critical study.* Shivaji. Dr. A. S. Chausalkar, Department of Political Science, Shivaji University, Kolhapur.

5. Pakhuongte, Ruolblei. *Political development in the Hill Areas of Manipur.* Manipur.

6. Pawar, Devidas Yenkatrao. *Indian politics and elite news papers, 1967-75 : A critical Study.* Shivaji. Dr. A. S. Chausalkar, Department of Political Science, Shivaji University, Kolhapur.

7. Singh, Salam Sanatomba. *Pak-U.S. axis during, 1979-86.* Manipur.

8. Singh, N. Tarunkumar. *The Meitei minority in Bangladesh : A case study of its economic, social and political status.* Manipur.

Economics

1. Bahuguna, Sanjeev. *Economic aspects of population growth in the North Eastern Region.* Manipur.

2. Meetei, K. Ibomcha. *A study of the khadi and village industries in Manipur..* Manipur.

3. Ngaihte, L. Chinzakham. *Zomi economy : Agrarian system under chieftainoy.* Manipur.

4. Pathak, Nanda. *Chhindwara Jile ke koyala udyogon mein rashtriya karan ke pashchat shramikon kee arthik sthiti.* HS Gour. Dr. M.L. Tripathi.

5. Singh, E. Bijoykumar. *Distribution of grains from technological change in agriculture : A case study of Manipur.* Manipur.

6. Singh, K. Manibabu. *Financing of rural development in Manipur, during plan periods.* Manipur.

7. Singh, L. Bokul. *Problems of agricultural labour : A case study of Thoubal District.* Manipur.

8. Singh, R.K. Lalit. *Industrialisation in Manipur : A policy framework.* Manipur.

9. Singh, Y. Momon. *Financing of college and small scale industries.* Manipur.

Law

1. Inder Singh. *Causation and control strategies of juvenile delinquency in Himachal Pradesh : A socio-legal study.* HP. Dr. C.L. Anand, Department of Laws, Himachal Pradesh University, Shimla.

Public Administration

1. Anil Kumar. *An evaluation of the performance of Haryana Agro-Industries Corporation.* Panjab. Dr. B. S. Ghuman, Department of Public Administration, Panjab University, Chandigarh.

2. Nisha Rani. *Policy analysis and implementation of welfare schemes for scheduled castes in the state of Haryana.* Panjab. Dr. Sahib Singh Bhayana, Department of Public Administration, Panjab University, Chandigarh.

3. Pannu, Madanjit Kaur. *Some aspects of job satisfaction of teachers working in universities and colleges in Panjab and Chandigarh.* Panjab. Dr. B.S. Ghuman, Department of Public Administration, Panjab University, Chandigarh.

4. Rustam Singh. *Status of violence in the Marxist theory of revolution : From Marx to Mao.* Panjab. Dr. B.S. Brar, Department of Public Administration, Paujab University Chandigarh.

Education

1. Apabi Devi, S. *Development of secondary education in Manipur from 1964-1984.* Manipur.

2. Azari, Homayoun. *A study of organizational climate in relation to the leadership behaviour and self concept of principals in the primary and secondary schools of Karman City, Iran.* Panjab. Dr. Harish Sharma, Reader, Department of Education, Panjab University, Chandigarh.

3. Bhagria, Rita. *The impact of polyvalent education of Shramik Vidyapeeths on industrial workers.* Panjab. Dr. (Mrs) Tehal Kohli, Department of Education, Panjab University, Chandigarh.

4. Bimola Devi, L. *An investigation into the problem of teacher education in Manipur at secondary stage.* Manipur.

5. Emomotimi, Ekisaowei. *Effect of occupational stress, attitude towards profession and fear of evaluation on teacher effectiveness.* Panjab. Dr. Asha Mohan Sethi, Department of Education, Panjab University, Chandigarh.

6. Farajollahi, Mehran. *Problems of primary education as perceived by parents of primary school children in Korman State of Iran.* Panjab. Dr. (Mrs) I.P. Sharma, Department of Education, Panjab University, Chandigarh.

7. Goyal, Sonia. *Effects of parental handling model and power on adolescent adjustment.* Panjab. Prof. S.S. Mathur, Department of Education, Panjab University, Chandigarh.

8. Kamau, Catherine Wanjiku. *Burnout, locus of control and mental health of teachers in Eastern Province of Kenya.* Panjab. Dr. Asha Gupta, Department of Education, Panjab University, Chandigarh.

9. Paramjit Kaur. *Effect of creativity intervention training on the traditional and divergent drawing characteristics of children in relation to their self concept and socio-economic status.* Panjab. Prof. (Miss) S. Gakhar, Department of Education, Panjab University, Chandigarh.

10. Rath, Niranjan Prasad. *Adult education training and productivity : A study of workers in Chandigarh.* Panjab. Dr. N.N. Pangotra, Director, Centre for Adult, Continuing Education and Extension, Panjab University, Chandigarh.

11. Santosh Kumar. *Assessment of physical fitnsss of Himachal Pradesh high school boys.* Panjab. Dr. Harnam Singh, Reader, Department of Physical Education, Panjab University, Chandigarh and Dr. Reet Mohinder Singh, Deputy Director, Physical Education, Panjab University Campus Sports, Chandigarh,

12. Satvinder Pal. *Effectiveness of computer assisted instruction on mathematics achievement of students at the Piagetian concrete and formal stages of development.* Panjab. Prof. J.N. Joshi, Department of Education, Panjab University, Chandigarh.

13. Urmila Rani. *Personal and educational environmental factors as correlates of moral judgement among urban and rural senior secondary students.* Panjab. Dr S.C. Gakhar, Lecturer, D.A.V. College of Education, Abohar.

Commerce

1. Chavan, Vasant Marutrao. *Financial management in dairy enterprises in inter-sectoral comparison.* Shivaji. Dr. P.S. Rao, Principal, Chh. Shahu Central Institute of Business Education and Research, Kolhapur.

2. Gavai, Anand Keshav. *The study of labour absenteeism in textile industry in 1986 in Solapur.* Shivaji. Dr. P.C. Shejwalkar, Chitamanrao College of Commerce, Sangli.

3. Koijam, Raibirola. *Motivation and organisation effectiveness in public sector undertakings of Manipur.* Manipur.

4. Madan, Yashwant Diwan. *A study of media planning methodology and enquiry into its applicability in India.* Shivaji. Dr. P.C. Shejwalkar, Chintamanrao College of Commerce, Sangli.

5 Mehta, Mohanlal. *Financing of small scale industries in Himachal.* HP. Dr. R.C. Kondle, Department of Commerce and Business Administration, Himachal Pradesh University, Shimla.

6 Sharma, Chand Parkash. *Industrial sickness in small scale industries in Himachal Pradesh.* HP. Dr. Sunil Kumar Gupta, Department of Commerce and Business Administration, Himachal Pradesh University, Shimla.

7. Shinde, Madan Madhavrao. *The study of city bus service with reference to Sangli and Miraj.* Shivaji. Dr. P.C. Shejwalkar, Chintamanrao College of Commerce, Sangli.

8. Singh, Badalkumar. *Financing of handloom industry in Manipur.* Manipur.

Business Management

1. Sharma, Rameshwar. *Accounting for price level changes : A study of private sector enterprises in Himachal Pradesh.* HP. Dr. Sunil Kumar Gupta, Department of Commerce and Business Administration, Himachal Pradesh University, Shimla.

HUMANITIES

Philosophy

1. Khundongbam, Gokul Chandra. *White head and neo-vedantism : A critical study in comparative philosophy·* Manipur.

Fine Arts

1. Byas Dev. *Historical portraits from the Lahore Darbar, 1739-1849.* Panjab. Dr. (Mrs) Karuna Goswamy, Department of Fine Arts, Panjab University, Chandigarh.

Language & Literature

English

1. Bakshi, Raj Nath. *The use of English in the Union Territory of Chandigarh : A study in sociolinguistics.* Panjab. Dr. N.K. Oberoi, Department of English, Panjab University, Chandigarh and Dr. Kamlesh Sadanand, Reader, Department of Phonetics and Spoken English, Central Institute of English and Foreign Languages, Hyderabad.

2. Binita Devi, G. *Feminism in the novels of Ruth Prawar Jhavwala.* Manipur.

3. Jha, Girish Chandra. *The achievement of T.S. Eliot as a literary critic.* Manipur.

4. Sharma, G. Ibopishak. *A study of secular thought in the poetry of A.L. Tennyson and R. Browning.* Manipur.

5. Singh, K. Manoranjan. *Isolation and integration : The plays of Arthur Miller and Tennessee Williams.* Manipur.

6. Singh, L. Raghumani. *John Donne and Gerard Manley Hopkins : A comparative study of their religious poetry.* Manipur.

7. Singh, S. Chandrajit. *Children characters in Charles Dicken's fiction.* Manipur.

Sanskrit

1. Arya, Sukumar. *Swamy Dayanand kee shaily ke paravarti ved bhashyakar : Tulanatmak adhyayan.* Panjab. Prof. B.L. Bhartiya Dayanand Chair for Vedic Studies, Panjab University, Chandigarh.

2, Dinesh Chander. *Swami Dayanand krit Aryabhivinay kee parampara mein rachit ved vyakhya granth.* Panjab. Prof. B.L. Bhartiya, Dyanand Chair for Vedic Studies Panjab University, Chandigarh.

3. Guleria, Mast Ram. *A critical and comparative study of Vyasabhasya and Yogavartiea of vijnanabriksu on patanjalayogasutra.* Panjab. Dr. D.R. Sharma, Department of Sanskrit, Panjab University, Chandigarh.

4, Minu Rani. *A study of ultimate in Sankara vedanta.* Panjab. Prof. R M. Sharma, Department of Sanskrit, Panjab University, Chandigarh.

5, Sharma, Deva Nand. *Swatantryottar Sanskrit gitikavyon ka sahityik adhyayan, 1951-1975.* Panjab. Dr. Ghanshyam Sharma, Visheshwaranand Vishwa Bandhu Institute of Sanskrit and Indological Studies, Hoshiarpur.

Punjabi

1. Asha Rani. *Punjab ke nirgun sant kavi.* Panjab. Prof. D.P. Singhal, Department of Guru Ravi Dass Chair, Panjab University, Chandigarh.

2. Baljit Kaur. *Guru Nanak bani vich manav-vad da sankalp.* Panjab. Dr. Raghbir Singh, School of Panjabi Studies, Panjab University, Chandigarh.

3. Jamit Kaur. *Jaswant Singh Kanwal de navalan dian naikavyan : Ek alochnatmak adhyayan.* Panjab. Dr. (Mrs) Kulwant Kaur Kohli, School of Punjabi Studies, Panjab University, Chandigarh.

4. Pannag, Gurdeep Kaur. *Punjabi sufi kavita vich triniha da udgam ate vikas.* Panjab, Prof. Attar Singh, Sheikh Baba Farid Chair, Panjab University, Chandigarh.

5. Rajinder Kaur. *Sant Singh Sekhon dian kahanian vich kisani sanskriti.* Panjab. Dr. Raghbir Singh, Lecturer, Department of Punjabi Lexicography, School of Punjabi Studies, Panjab University, Chandigarh.

6. Sewarn Kaur. *Sant kavi Garib Dass : Jiwan sampradai, evam kavya ka vivechan.* Panjab. Prof. D.P. Singhal, Guru Ravi Dass Chair, Panjab University, Chandigarh.

7. Surinder Kumar. *Amrita Pritam de navelan da alochnatmak adhyayan.* Panjab. Dr. Jagtar Singh, Lecturer, Department of Punjabi, Govt. College, Hoshiarpur.

8. Virk, Kuljeet. *Punjabi dian istri kahani karan dian kahani vich istri samvedana.* Panjab. Dr. Raghbir Singh, Lecturer, Department of Punjabi, Lexicography. School of Punjabi Studies, Panjab University, Chandigarh.

Hindi

1. Ahanthembi, Sundari. *Hindi evam Manipuri natya sahitya ka tulnatmak adhyayan.* Manipur.

2. Anand, Geeta. *Adhunikta ke sandarbh mein swatantryottar Hindi Ramkavya.* Panjab. Dr. Laxmi Narain Sharma, Department of Hindi, Panjab University, Chandigarh.

3. Asha. *Manav mulyon ke sandarbh mein Kabir tatha Tulsidass ke kavya ka tulnatmak adhyayan.* Panjab. Dr. R.D. Singhal, Department of Hindi, Panjab University, Chandigarh.

4, Ibemhal Devi, L. *Brajabuli Geeti kavya ke pariprekshya mein Manipuri geeti kavya ka anusheelan.* Manipur.

5. Jain, Sangita. *Hindi ke manovaigyanik upanyason ke pramukh istri purush patron ke prem sambandhon ka adhyayan.* Devi Ahilya. Dr. (Smt) C.K. Agnihotri, Asstt. Prof., Govt. Girls's P.G. College, Moti Tabela, Indore.

6. Jain, Sarita. *Shiv Prasad Singh ka katha sahitya.* Manipur.

7. Kanchan Lata. *Deijender Lal Rai ka Chandergupt tatha Jaishankar Prasad ka Chandergupt Maurya : Tulnatmak adhyayan itihasik evam sanskritik drishti se.* Panjab. Dr. D.P. Maini, Department of Hindi, Panjab University, Chandigarh.

8. Mulla Mahmashanif Imamhusen. *Hindi ke itihasik katha sahitya mein nari samsyayen : Premchand yug se san 1960 isvi tak.* Shivaji. Dr. B.B. Patil, Principal, Mahavri College, Kolhapur.

9. Prasad, Shiv Narayan. *Vishnu Prabhakar ke sahitya mein vyakta vichardhra ka vishleshnatmak adhyayan.* Manipur.

10. Rai, Shiv Shankar. *Ghazipur Jile ka maukhik sahitya.* Manipur.

11. Ram Sudhar. *Bhojpuri lokgiton ka adhyayan* Manipur.

12. Sasikaladevi, I.S. *Lakshmi Narayan Lal ke natakon par astitvavad ka prabhav.* Kerala. Dr. V.V. Viswam, Prof., Department of Hindi, College for Women, Trivandrum.

13. Shabade, Revansidha Kallappa. *Yashpal ke katha-sahitya mein nari chitran.* Shivaji. Dr. P P. Pathak, D B.F Dayanand College, Solapur.

14. Sharma, Khema Nanda. *Rajasthani aur Nepali lok, geeton ka tulnatmak adhyayan.* Manipur.

15. Sharma, Khyali *Nagarjuna : Vyakti aur vichardhara.* Manipur.

16. Sharma, Ramesh Kumar. *Swatantrayottar Hindi kahani mein pashchatya jeevan paddhati.* Panjab. Dr. Lakshminarayan Sharma, Department of Hindi, Panjab University, Chandigarh.

17. Shashi Kusum. *Samkaleen Hindi natakon ka adhyayan : Sanskrit rangvidhan ke sandarbh mein 1960 se aaj tak* Panjab, Dr. V.R. Mehndiratta, Department of Hindi, Panjab University, Chandigarh.

18. Singh, Jagadish. *Hari Krishna Premi evam Uday Shankar Bhatta ka natakon ke tulnatmak adhyayan.* Manipur,

19. Singh, M. Achoubi. *Hindi aur Manipuri ke pratyayon ke tulnatmak adhyayan.* Manipur.

20. Singh, R.K. Khirdirchand. *Hindi aur Manipuri ke lokgeeton ka tulnatmak adhyayan.* Manipur.

21. Singh, Y. Tomba. *Manipuri Bhashi chhatron kee Hindi vartnigat trutiyon ka vishleshan tatha samadhan, Class VI to VIII ke liye.* Manipur.

22. Subhash Chand. *Manavvad ke sandarbh mein Vishnu Prabhakar ka sahitya.* Panjab. Dr. Yash Gulati, Department of Hindi, Panjab University, Chandigarh.

23. Thakur, Hariram. *Brajbhasha aur Bundeli kee krishk jeevan sambandhi shabdavali ka tulnatmatk anusheelan.* HS Gour. Prof. K K. Jain, Department of Hindi, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

24. Trikha, Chander Dutt. *Panjab kee Hindi patrakarita, 1947 se aaj tak.* Panjab. Dr. Yash Gulati, Department of Hindi, Panjab University, Chandigarh.

25. Vaishnava, Pramila. *Visangat Hindi natak : Ek anusheelan, san 1960 se 1987 tak.* Devi Ahilya. Dr. Vilas Gupta, Lecturer, Department of Hindi, Govt. New Girls Degree College, Indore.

26. Yadav, Surendra Singh. *Agyeya ke katha sahitya mein vyaktidayivta aur samajik dayitva ka dvandh.* Panjab. Prof. M.P. Bhardwaj, Department of Hindi, Panjab University, Chandigarh.

Tamil

1. Devadas, D. *Tamil translations : Study with special reference to works from Malayalam.* Kerala. Dr. K. Nahimuthu, Reader, Department of Tamil, University of Kerala, Trivandrum.

2. Neelamohan, N. *The critical study of Maduras Veerankatai.* Kerala. Dr. P. Doctor Nazeemudeen, Lecturer. Department of Tamil, University of Kerala, Trivandrum.

3. Raman, S. *Manehari Tamil monthly : A study.* Kerala. Dr. K. Subramony, Prof. and Head, Department of Tamil, University of Kerala, Trivandrum.

4. Shanmugam, N. *Critical edition and study of yapparunkalavirutti.* Kerala. Dr. K. Nahimuthu, Reader, Department of Tamil, University of Kerala, Trivandrum.

5. Venukumar, V. *Personel names in Kanyakumari District with special reference to Kalkulam and Bilavancode taluka : A study,* Kerala. Dr. C. Subramonia Pillai, Reader, Department of Tamil, University of Kerala, Trivandrum.

Geography

1. Barmaiya, Jwahar Lal, *A study of the age and sex composition of the population of upper Narmada Basin, 1961 to 1981.* HS Gour. Prof. R.S. Dubey, Department of Geography, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

2. Dubey, Rakesh Kumar. *A geographical study of the population of Bundelkhand Region.* HS Gour. Dr. S.K. Shukla, Department of Geography, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

3. Malti Devi. *Impact of irrigation on farm mechanization and crop output in selected areas of Madhya Pradesh.* HS Gour. Dr. P.D. Tiwari. Department of Geography, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

4. Nayar, Manju. *Population and food supply in Andaman Islands.* HS Gour. Dr. R.P. Mishra, Department of Geography, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

5. Pathak, Surendra Kumar. *Ethno-social geography of Sagar City : An interdisciplinary study.* HS Gour. Dr. J L. Jain, Department of Geography, Dr. Harisingh Gour Vishwavidyalaya, Sagar and Dr. Prof Samrender Saraf.

6. Rathore, Sandhya. *Impact of development programmes on the rural population in Sagar District, M P.* HS Gour. Dr. S.K. Shukla, Department of Geography, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

7. Siriya, Pratima. *District level planning : A case study of Hoshangabad.* HS Gour, Dr. R.P. Mishra. Department of Geography, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

8. Subedar, Pradeep Kumar. *Morphometric analysis on the Bina Basin,* HS Gour. Dr. R.S. Dubey, Department of Geography. Dr. Harisingh Gour Vishwavidyalaya, Sagar.

History

1. Das, Ranjana. *The evolutian of regional power configuration in the Indian sub-continent C. 600 B.C. to 200 B C. : A geo political study.* Manipur.

2. Debendra Singh, N. *Social and cultural history of Manipur 15th to 17th C.* Manipur.

3. Joseph, A.K. *The Marams : A socio-cultural study.* Manipur.

4. Khan, Nalini Felicia. *Agrarian and fiscal administration in Ancient India from the Maurya to the Gupta periods.* Panjab. Dr. J.K. Sharma, Department of History, Panjab University, Chandigarh.

5. Kullachandra. *Second World War and Manipur : A historical study.* Manipur.

6. Pakhuongte, Kimnu. *Missionary education and its impact on tribal society : The case of Hmars in North-East India.* Manipur.

7. Pazhani, T. *Social change among the Vellalas o Nanchinad.* Kerala. Dr. B Sobhanan, Lecturer, Department of History, University of Kerala, Trivandrum.

8. Pudaite‘ Josangkim. *A historical study of the festivals of Manipur.* Manipur.

9. Rajasekharan, K. *History of social change among the Nairs in Kerala,* Kerala. Dr. B. Sobhanan, Lecturer, Department of History, University of Kerala, Trivandrum.

10. Sarachandran, M.K. *A history of administrative changes in Travancore, 1809-1888.* Kerala. Dr. B. Sobhanan, Lecturer, Department of History, University of Kerala, Trivandrum.

11. Sreekumar, R. *Socio political life of Malabar as depicted in the Northern Ballads.* Kerala. Dr. K.K. Kusuman, Reader, Department of History, University of Kerala, Trivandrum.

12. Syed Ahmed. *The British East India Company and the North Eastern State Sylhat, Cachar and Manipur during the 18th and the 19th century.* Manipur.

13. Thankarajan, C. *Social and educational changes among the mappilas of Malabar, 1850-1947.* Kerala. Dr. B. Sobhanan, Lecturer, Department of History, University of Kerala, Trivandrum.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities.

SOCIAL SCIENCES

Psychology

1. Achala Kumari, Y. *Small group interaction and social acceptance among pre-adolescents.* Bangalore. Dr. M.S. Thimmappa, Department of Psychology, Bangalore University, Bangalore.

Sociology

1. Agrawal, Sudha, *Dakshini-Pashchimi Madhya-Pradesh ke janjati kshetron mein krishi privartan.* Devi Ahilya. Dr. Y. G. Joshi, Govt. Arts and Commerce College, Indore.

Political Science

1. Chenoy, Anuradha Mitra. *Soviet theories of national liberation with special reference to Soviet attitudes in the United Nations, 1945-65.* JNU. Prof. R.R. Sharma, Centre for Soviet and East European Studies, Jawaharlal Nehru University, New Delhi.

2. Jain, Satya Narayan. *Bharatiya samvidhan ke Moolbhoot tattwa : Ek alochnatmak adhyayan, visheshtah Uchchatam Nyayalaya dwara diye gaye Keshavanand Bharati tatha parvarti nirnayon ke alok mein.* Rajasthan. Prof. H. G. Pant, Department of Political Science, University of Rajasthan, Jaipur.

3. Nalini, Madireddi. *Women's welfare programmes in Andhra Pradesh : A case study of Visakhapatnam District.* Andhra.

4. Ojha, Narendra Kumar. *Vishwa rajn iti mein asanlangna rashtron kee bhoomika : Asia ke vishesh sand arbh mein.* Vikram. Dr. Amaresh Awasthi, Ex-Vice-Chancellor, Rani Durgawati Vishwavidyalaya, Jabalpur.

5. Pathak, Gyanvardhan. *Kendra -rajya sambandh : M.P. ke vishesh sandarbh mein.* Vikram. Dr. Amaresh Awasthi, Ex-Vice-Chancellor, Rani Durgawati Vishwavidyalaya, Jabalpur.

6. Ram Chander. *National political parties and directive principles, 1967-1980,* Kurukshetra.

7. Kay, Asok Kr. *The problem of legitimacy in the Thadoukuki Tribal society in Manipur.* Burdwan. Prof. Radharaman Chakraborti, Formerly Prof, Department of Political Science, University of Burdwan, Burdwan and Prof. N. C. Choudhuri, Prof., Department of Sociology, North Bengal University, Rajarammohanpur, Distt. Darjeeling.

8. Sinha, Navanit. *Administration of entertainment tax in Bihar.* Magadh,

9. Tiwari, Suman. *Bharatiya rashtrapati kee apatkaleen shaktiyan.* Vikram. Dr. C. S. Panwar, Reader, Department of Political Science, Vikram University, Ujjain.

Economics

1. Bajaj, Sitaram Shiriramji. *A study of the use of various information sources and communication channels for transferring*

the new agricultural technology to the farmers of the drought prone areas. MP Agrl. Dr. S.S. Thorat, Director of Extension Education, Mahatma Phule Agricultural University, Rahuri.

2. Dubey, Anju. *Damoh Jile mein adivasi laghu pariyojana : Ek mulyankan.* HS Gour. Dr. M.L. Tripathi, Department of Economics, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

3. Gupta, Babu Lal. *Operations management, production planning and control : Application of operation research techniques.* Rajasthan. Dr. B. S. Gupta, Department of Accountancy and Business Statistics, University of Rajasthan, Jaipur and Dr. R.S. Khandelwal Department of Mathematics, University of Rajasthan, Jaipur.

4. Jain, Chandra Prakash. *Profitability analysis of bearing industry in India.* Rajasthan. Dr. B. S. Gupta, Department of Accountancy and Business Statistics, University of Rajasthan, Jaipur.

5. Lali Devi. *Non conventional energy sources in rural household sector of Haryana : An action research.* HAU.

6. Mathew. Ajoy. *A study of coconut economy of Kerala, 1956-1983.* CUST. Dr. K. C. Sankaranarayanan, Prof. and Head, Department of Applied Economics, Cochin University of Science and Technology, Cochin.

7. Singh, Ningthoujam Ram. *Agricultural development in the North-Eastern region of India including Sikkim during the plan period,* Manipur. Prof. H. Nabakishore Singh, Head, Department of Economics. Manipur University, Imphal.

8. Singh, Prabhat Kumar. *Role of the Rajasthan Co-operative Federation Limited in the agrarian economy of Rajasthan.* Rajasthan. Prof. Om Prakash, P-2, University Campus, University of Rajasthan, Jaipur.

9. Singh, W. Kumar. *Population growth and agricultural development in Manipur, 1951-1985.* Manipur. Dr. L. Tombi Singh, Assoc. Prof, Department of Economics, Manipur University, Imphal.

10. Vijaya Prajapathi Joshua, Busi. *The nature of absenteesm in industry : A study of Hindustan Shipyard Limited.* Andhra.

Law

1. Gupta, Subhash Chander. *Protective discrimination as an instrument of social justice under the Indian Constitution.* Kurukshetra.

2. Sabharwal, Ramesh Kumar. *Safeguards to Industrial workers in the matter of termination of services in India.* Kurukshetra.

Public Administration

1. Ananda Rao, Gurugubelli. *Finance Commissions of India : A study of some aspects.* Andhra.

2. Ananda Rao, Mailapalli. *Functions and finances of local bodies in Andhra Pradesh : A case study of local bodies in Visakhapatnam District.* Andhra.

Education

1. Das, Banamali. *Construction and standardization of a scientific aptitude test in Oriya for the 10th class students of Orissa.* Kurukshetra.

2. Mathur, Brijendra Mohan. *Adult education and social change in Rajasthan.* Rajasthan.

3. Sangwan, Ram Kanwar. *A study of motive structure of high proficiency sprinters and low proficiency sprinters.* Kurukshetra.

4. Sharma, Sunil Dutt. *Relationship of leg power, speed of movement, co-ordinative abilities and flexibility to acceleration ability in sprinting of 14 to 16 years boys of Haryana State.* Kurukshetra.

5. Siddiqui, Shahjahan. *Standardization of a test in creative-thinking for Urdu-speaking student at formal-operative stage in Telangana Area. A. P. State.* Osmania.

6. Vijaya Lakshmi, Ch. *An evaluation of logical application of Mathematics to educational research with special reference to doctoral level.* Osmania.

Commerce

1. Golchha, Sugan Chand. *Madhya-Pradesh ke dal udyog ka vishleshanatmak adhyayan : Narsinghpur Jile ke vishesh sandarbh mein.* Durgawati. Dr. D. K. Sinha, Prof., G. S. College of Commerce and Economics, Jabalpur.

2. Kaushal, Vijay Kumar. *Case studies on acquisition/mergers/take-overs of companies in India.* HP.

3. Shrestha, Rajani. *Industrial estates in Nepal.* Baroda.

4. Srivastava, Nirmal Kumar. *Cooperative leadership in Bihar : Problems and prospects.* Magadh.

Home Management

1. Goel, Manju. *A study of family managerial behaviour in energy crisis situation.* Baroda.

Management

1. Basu, Anirban. *Some studies on the performance of parallel processing computer systems.* Calcutta.

2. Ramakrishna Sastri, G.B. *Theory and practice of board level participation with special reference to nationalised banks and major ports in India.* Osmania.

3. Sharma, Prakash. *Management and control of materials in iron and steel industry in India.* Rajasthan. Dr. Sugan Chand Jain, Department of Accountancy and Business Statistics, University of Rajasthan, Jaipur.

4. Singh, Ram Naresh. *Design of an expert user interface management system.* JNU. Dr. P.C. Saxena, School of Computer and Systems Sciences, Jawaharlal Nehru University, New Delhi.

Post Graduate Institute of Medical Education & Research
Chandigarh

ADMISSION NOTICE NO. 3/88

Applications on prescribed form are invited by **12th July 1988** for the following courses starting from **first September, 1988.**

	Name of the Course	No. of total seats	Seats reserved for Sch.Castes/Tribes	Stipend admissible	Duration
1.	B.Sc. Medical Technology (Laboratory)	15	3	Rs. 150/- p.m. for first year and Rs. 200/- p.m. for second year	2 years
2.	B.Sc. Medical Technology (X-Ray)	10	2	—do—	—do—
3.	B.Sc. Medical Technology (Radiotherapy)	5	—	No stipend admissible	—do—
4.	B.Sc (Audiology & Speech Therapy)	3	1	Rs. 150/- p.m. for first year and Rs. 200/- p.m. for 2nd and 3rd years	3 years
5.	Operation Theatre Assistant's Course	10	2	Rs. 150/- p.m.	1 year

(i) The number of seats given above is subject to variation without prior notice.

(ii) Candidates should not be more than 25 years and less than 17 years on 1.9.1988 i.e. candidates born after 1.9.1971 and before 1.9.1963 are not eligible.

(iii) Candidates selected for courses at Sr. Nos. 1, 2, 4 and 5 shall execute service bond which, inter-alia, provides that after successful completion of the course, they shall serve the Institute/Govt. for a period of three years.

(iv) A limited number of sponsored/deputed candidates may also be accepted for courses at Sr. Nos. 1, 2, 4 & 5. The admission to course at Sr. No. 3 is restricted to deputed/sponsored candidates only. No upper age limit for the deputed/sponsored candidates.

(v) Selection will be held at Chandigarh during August, 1988 for which candidates will appear for test and interview at their own expense.

ELIGIBILITY QUALIFICATIONS

For Courses at 1 & 2 : Pre-Medical or Pre-Engineering passed or its equivalent qualification from a recognised Board/University.

OR

(a) Higher Secondaay OR Pre-University passed or its equivalent with Physics and Chemistry from a recognised Board/University.

(b) Certificate/Diploma in Laboratory techniques (for course No. 1) and in Radiotherapy (for course No. 2) of at least one year duration from a recognised Institute.

(c) 3 years experience as Laboratory Assistant/Technician (for course No. 1) and as Radiographer (for course No. 2) in a recognised teaching/research Institute after obtaining the qualifications mentioned at (a) and (b) above.

OR

(a) Matriculate passed with Physics and Chemistry from a recognised Board/University.

(b) Certificate/Diploma of atleast one year duration in the subject concerned viz. Laboratory techniques for course No. 1 and Radiography for course No. 2 from a recognised Institute.

(c) 5 years experience as Laboratory Assistant/Technician (for course No. 1) and a Radiographer (for course No. 2) in a recognised teaching/research Institute after obtaining the qualification at (a) and (b) above.

For Course No. 3 : Pre-Medical or Pre-Engineering passed or its equivalent qualification with atleast 50% marks from a recognised Board/University.

OR

(a) Higher Secondary or Pre-University passed with Physics and Chemistry.

(b) Diploma in Radiography of one year duration from a recognised University or Institute.

(c) Atleast three years experience as Technologist attached to Radiotherapy division or department of a recognised teaching/research Institute obtaining the qualifications at (a) and (b) above.

For Course No. 4 : 10+2 passed with Science from a recognised Board with atleast 50% marks.

For Course No. 5 : Matriculation/Higher Secondary passed in First Division with Physics and Chemistry or its equivalent for general candidates. Matriculation/Higher Secondary passed in atleast Second Division with Physics and Chemistry for candidates belonging to Scheduled Castes/Tribes and also for sponsored/deputed candidates.

Application form and detailed information are available from the office of the undersigned either personally on payment of Rs. 2/- at the counter from 11.00 A.M. to 12.00 Noon and 3.00 P.M. to 4.00 P.M. on all working days or by post for which the request must be accompanied with a self addressed envelope size (23×10 cms.) bearing postage stamps of Rs. 1.80 and crossed postal order/Bank Draft for Rs. 2/- drawn in favour of the Director.

055/CH **REGISTRAR**

Dr. Yashwant Singh Parmar University of Horticulture and Forestry

NAUNI-SOLAN-173230 (HP)

ADMISSION NOTICE

Applications are invited for admission to the following programmes for academic session 1988-89 starting from 27-7-1988.

I. B.Sc. Horticulture and B.Sc. Forestry 4-year Programmes

Admission shall be through multiple choice question type combined entrance examination to be held on 25-7-1988 at St. Luke's High School, Mall Road, Solan (HP) from 9.00 A.M. to 1.30 P.M.

Eligibility : 10+2/Intermediate/TDC-I (Science or Agriculture)/Pre-Medical/Pre-Engineering with 50% marks (Relaxable by 5% for SC/ST) or 55% marks of such examination from a Board/University from abroad recognized by this University.

Last date for receipt of application mentioning the preference for programme is **15-7-1988** with examination fee of Rs. 50/- and **21-7-1988** with late fee of Rs. 50/- + Rs. 50/- as examination fee.

II. Master's Programme

Admission is based on the performance in the qualifying examination.

Last date of the receipt of admission form for M.Sc. is **11-7-1988**.

(a) **Horticulture (Interview on 15-7-1988 at 11.00 A.M. in the University Campus)**

1. Fruit Culture and Orchard Management.
2. Post Harvest Technology.
3. Vegetable Crops.
4. Floriculture and Landscaping.
5. Mycology and Plant Pathology.
6. Entomology and Apiculture

(b) **Forestry (Interview on 16-7-1988 at 11.00 A.M. in the University Campus)**

1. Forest Biology and Tree Improvement
2. Silviculture and Agro-forestry.
3. Forest Products and Utilization.
4. Soil Science and Water Management.
5. Economics.

Eligibility : B.Sc. (Hort./Fty./Agr.) with OGPA 2.70/4.00/equivalent under course credit system or 1st Division under annual system (Relaxable by 5% for SC/ST/Inservice candidates) from a recognized University.

Order of preference for eligibility for admission in M.Sc. is given in the prospectus.

General Conditions for All

(i) Prospectus-cum-Admission form can be obtained from Registrar on payment of Rs. 10/- at the counter or by post through crossed IPO of Rs. 15/- in the name of the Comptroller of this University. NO MONEY ORDERS/CHEQUES ARE ACCEPTABLE.

(ii) No separate letter for entrance examination/interview will be issued.

(iii) Candidates should attend entrance examination/interview at their cost on the specified date and time and bring original certificates.

B. S. Nainta
REGISTRAR

GOVERNMENT OF INDIA PUBLICATIONS
NEW ARRIVALS, APRIL 1988

S. No.	TITLE	PRICE in Rs.
1.	Civil List of the Indian Administrative Service as on the 1st January, 1987. (Print. 1987). PDPT. 6. (N)	121.00
2.	Indian Trade Classification-Revision-2. (1983 Reprint with Amendments upto 1st April, 1983). (Print. 1984). PDGCIS. 100. (Rep.).	80.75
3.	Indian Trade Classification (Based on Harmonized Commodity Description and Coding System). (Print. 1987). PDGCIS. 101. (N)	120.00
4.	Rastriya Panchang. Saka Era 1910 (1988-89 A.D.) Malayalam Version. (Print. 1987.) PDGM. 80.1910 (Malayalam (N)	5.00
5.	Marketing of Potato in India (Print. 1988). PAMA. 187.	37.00
6.	Occupational Wage Survey. (Fourth Round 1985-90). Report on Plantation Industries (1985-86). (Print. 1987). PDLB. 280 (N)	17.50
7.	Economic Conditions of Women Workers in Raw-Leaf Tobacco, Zarda and Cigarettes, Brick Kilns, Tiles, Stone Dressing and Stone Crushing, Electric and Miniature Lamps, Radio and Television Sets, and Fountain Pen and Ball-Pens Industries. (Print. 1988). PDLB. 291 (N)	50.00
8.	Import and Export Policy April, 1988-March, 1991. Volume-1. Imports and Exports Promotion. (Print. 1988). PCCIE. 88-91 Vol. I (E)	75.00
9.	Import and Export Policy April, 1988-March 1991. Volume II. Export Control and Procedures. (Print. 1988). PCCIE. 3.88-91. Vol. II (E)	50.00
10.	Handbook of Procedures April, 1988-March, 1991. Imports and Exports Promotion. (Print. 1988). PCCIE. 2. 88-91 (E)	75.00
11.	Pocket Book on Transport in India 1985-86. (Print. 1987). PMT. 133. 85-86	118.40
12.	Census of India 1981. Occasional Papers. No. 5 of 1988. Child Mortality Estimates of India. (Print. 1988). PRG. 107.81. (N)	20.00
13.	Census of India 1981. Series-6. Haryana. Paper 1 of 1987. Households and Households Population by Language Mainly Spoken in the Households. (Print. 1988.) PRG. 12.81 (Haryana)	11.00
14.	Census of India 1981. Series-10. Kerala. Pt. X-A. Town-Directory. (Print. 1987). PRG. 1.81. (Kerala).	26.00
15.	Census of India 1981. Series-14. Meghalaya. Pt. IX. Special Tables for Scheduled Castes and Scheduled Tribes. (Print. 1988). PRG. 5.81. (Meghalaya).	24.00
16.	Census of India 1981. Series-28. Delhi. Pt.IX. Special Tables for Scheduled Castes. (Print. 1988.) PRG. 9.81. (Delhi)	8.00
17.	चेक-हिन्दी कोश (प्रिट. 1987.) पी ई.डी. 598 (चेक)	275.00
18.	तकनीकी विकास महानिदेशालय की रिपोर्ट, 1984-85 (प्रिट 1987) PDGTD. 1.85 (Hindi)	60.00
19.	कृषि समीक्षा जनवरी-1988	5.00
20.	Laghu Udyog Samachar March, 1988.	3.00
21.	Sharkara. January-December, 1982.	16.00

Supply below Rs. 2.00 is made by Book Post and 20% of the cost of publication towards Postage charges may be sent Extra. For supply above Rs. 2.00 and below Rs. 10.00, please remit 20% of the cost of publication towards Postage + Registration charges. For Supply of Rs. 10.00 and above, the Postage and Registration charges are borne by this Deptt. Supply can also be made by V.P.P. upto Rs. 50.00

For requirements of publications released by various Ministries/Departments of the Government of India, the Periodicals and Gazette of India, (All Parts), please contact any of our Sales Depot/Counters or book your orders and address enquiries to the undersigned

(1) Kitab Mahal, Baba Kharak Singh Marg, State Emporia Unit No. 21, New Delhi. Tele. No. 343708.
(2) Book Depot, 8 K.S. Roy Road, Calcutta. Tele. No. 283813.
(3) Sale Counter, Udyog Bhavan, Gate No. 3, New Delhi. Tele. No. 3012082.
(4) Sale Counter, Headquarters, Civil Lines, (Behind Old Sectt.) Delhi-110054 Tele. No. 2517800, 2517823.
(5) Sale Counter, Revenue Building, New Delhi (Custom Gate).
(6) Sale Counter, UPSC. Dhaulpur House, New Delhi. Tele. No. 383991.
(7) Sale Counter, Delhi High Court, New Delhi (Room No- 264-C).

These publications can also be had from our authorised agent and sale and return agents (including State Govt.) all over the country and abroad.

CONTROLLER OF PUBLICATIONS
Department of Publications,
Civil Lines, Delhi-110054.

प्रकाशन नियंत्रक
प्रकाशन विभाग, सिविल लाईन्स, दिल्ली-54

davp 88/138

INDIRA GANDHI NATIONAL OPEN UNIVERSITY

Announces Admission to

Bachelor's Degree Programme, 1988-89 (B.A. & B.Com.)

Indira Gandhi National Open University, an autonomous institution set up under an Act of Parliament, invites applications from eligible candidates for admission to its Bachelor's Degree Programme leading to the award of degrees in B.A. and B. Com. The University offers opportunities for higher education through the use of distance teaching methods which include carefully designed self-instructional printed study materials, continuous evaluation of student's assignments, facility for use of audio and video cassettes, counselling programmes at more than 100 study centres spread all over the country. The University also plans to make use of other mass media like radio and television in due course to provide still better means to its learners/students living in remote areas of the country. THE SALIENT ASPECTS OF THE PROGRAMME OFFERED AND INSTRUCTIONS GIVEN BELOW SHOULD BE CAREFULLY READ AND COMPLIED WITH BEFORE FILLING UP THE ACCOMPANYING FORM.

PRE - REQUISITES & FEATURES OF THE PROGRAMME

1. Who can be admitted ?

The candidates should have passed Senior Secondary School Examination (Plus Two Stage under the 10+2 Pattern), Intermediate Examination or Higher Secondary II or an equivalent Examination from a recognised Board of Education or a University.

2. What Age ?

There is no restriction of minimum or maximum age. However, the University reserves the right to rationalise admission on the basis of merit at the entry qualification.

3. How long to study ?

A minimum study period of three years is required to be devoted; HOWEVER THE STUDENTS HAVE THE FREEDOM TO COMPLETE THE PROGRAMME SUCCESSFULLY IN A MAXIMUM PERIOD OF 8 YEARS. Thus persons engaged in their professions or domestic chores can pace their studies depending on time and other facilities available with them.

4. How much to study ?

The students will have to earn 96 credits in all for the award of B.A. or B.Com degree. Each credit would require 30 hours of study. The study programme would comprise Foundation Courses-24 credits. Elective Courses in Hindi, English, History, Pol. Science, Public Admn., Economics, Sociology and Commerce 56-64 credits and Application-oriented courses 8-16 credits. The programme of study is divided into small and manageable printed course modules of 4 or 8 credits each.

Courses equivalent of maximum 32 credits can be offered in a single year.

During the first year, however, the students will be required to take Foundation Courses carrying 24 credits. Students can also do one elective course of 8 credits alongwith the Foundation Course.

5. What medium of instruction ?

Undergraduate courses, other than languages, are available in English as well as Hindi. The choice is left to the student.

6. How frequent the Testing ?

The first examination in the course/courses offered will be at the end of concerned academic session. The students can pace their studies and earn credits according to their convenience, subject to 3 above.

The progress of the student will be assessed on a continual basis through assignments which the students will be required to submit on a regular basis as per schedule announced. The performance in continuous evaluation (assignments) will be counted towards final result as per the rules of the University.

7. Where will you get counselling facilities ?

Counsellors/Tutors shall be available at one of the following study centres to be allocated after admission.

Hyderabad, Tirupati, Vijayawada, Guntur, Warangal, Anantpur, Somajiguda (Hyderabad), Port Blair, Itanagar, Guwahati, Patna, Jamshedpur, Dhanbad, Muzaffarpur, Bhagalpur, Ranchi, Chandigarh, Delhi, New Delhi, Margoa, Ahmedabad, Vadodara, Rajkot/ Kurukshetra, Sonepat, Panipat, Bhiwani, Rohtak, Shimla, Mandi, Solan, Jammu-Tawi, Bangalore, Mangalore, Dharwad, Trivandrum, Bhopal, Jabalpur, Durg, Gwalior, Bilaspur, Indore, Sagar, Rewa, Bombay, Pune, Satara, Kolhapur, Nagpur, Imphal, Shillong, Kohima, Bhubaneswar, Cuttack, Rourkela, Berhampur, Angul, Balasore, Bolangir, Sambalpur, Jallandhar, Jaipur, Udaipur, Kota, Jodhpur, Bikaner, Madras, Coimbatore, Madurai, Tiruchirapalli, Lucknow, Agra, Allahabad, Bareilly, Dehradun, Kanpur, Modinagar, Varanasi, Gorakhpur, Sultanpur, Haldwani (Nainital), Jhansi, Hamirpur, Aligarh, Calcutta, Kanchrapara.

Though the scheme is open in nature and the University would make its programme accessible to all those who are otherwise eligible for it, it however reserves its right to limit admissions depending on facilities and resources available with it. AS SUCH FULFILMENT OF ELIGIBILITY CONDITIONS DOES NOT GUARANTEE ADMISSION TO THE PROGRAMME OR TO THE USE OF ANY FACILITY OFFERED BY THE UNIVERSITY OR CREATION OF NEW FACILITIES IN ANY WAY.

Applications complete in all respects in the accompanied format should reach the University on or before Monday the 11th July, 1988 alongwith the Registration Fee of Rs. 15/-. The relevant documentary evidence will be required at the time of confirmation of admission to the Programme. IT IS THEREFORE ADVISABLE THAT AUTHENTICITY OF INFORMATION SUPPLIED IN THE APPLICATION FORM IS CAREFULLY ENSURED. In the event of any information found incorrect or having any bearing on the eligibility of the case, the admission shall be liable to cancellation any time.

The application forms should be addressed to :

The Director
Admission & Evaluation
Indira Gandhi National Open University
K-76, Hauz Khas
New Delhi - 110 016

Please write APPLICATION-BDP in block letters on the envelope containing the Application form. In case the candidates need acknowledgement, they should enclose a self-addressed post card. The selected candidates will be sent communication by middle of August 1988. Queries in the intervening period will not be attended to.

Director, Admissions & Evaluation

APPLICATION FORM

Bachelor's Degree Programme, B.A. & B.Com.

LAST DATE : Monday, July 11, 1988

This part of the advertisement may please be cut out and duly filled-in. For more copies for use of your friends and acquaintances/others, the form may be xeroxed or typed out or its columns be neatly redrawn by hand if adequate facilities are not available.

General Instructions :

1. While typing or redrawing by hand, draw only the columns. These should be in the same order as given in this proforma and should have sufficient space to write the needed information.
2. The entries be filled in English only and in CAPITAL LETTERS so that entries can be correctly recorded by the Computer.

1. Name : CAPITAL LETTERS ONLY

Surname Name (First & Second)

Write only one letter in each box. Leave one box blank between Surname and Name. Please condense your name if the space is not sufficient.

2. Date of Birth :

☐☐ ☐☐ ☐☐☐☐

Date Month Year

3. Sex : Please write Code No in the given box

1—Male, 2—Female ☐

4. Nationality: ____________________

5. Father's Name:

Surname Name (First & Second)

6. Postal Address (Complete)

1.

2.

3.

4. Village/Town

5 Distt. & State

6. Pin Code

7. Educational Status

Highest Public Examination Passed	Name of the Board or University	Year of Passing	Subjects Passed	% of Aggregate Marks

(Please read instructions in the concluding para)

8. Choice of Stream/Course

(Write B.A. or B.Com. in the Box)

9. Whether SC or ST candidate ?

(Write SC for Scheduled Caste
or ST for Scheduled
Tribe, if applicable)

10. Registration Fee

Remit Rs. 15/- through a Bank Demand Draft payable to :

'Indira Gandhi National Open University, New Delhi'.

Bank **STATE BANK OF INDIA ONLY**

Branch & Town ____________________

Bank Draft No. ____________________

(Letter Code) (Number)

CAPITAL LETTERS ONLY

Date of Issue____________________

I hereby declare that the particulars supplied by me are correct to the best of my knowledge and it will be supported by documents when asked for. I am also fully aware of the fact that in the event of any information being found incorrect or misleading my candidature shall be liable to cancellation by the University any time.

Date : **Full Signature of the Candidate**

WADIA INSTITUTE OF HIMALAYAN GEOLOGY

(An Autonomous Organization of Department of Science and Technology,
Government of India)
33, GENERAL MAHADEV SINGH ROAD,
DEHRA DUN - 248 001

No. Advt. No. 1/88-WIHG **Dated : 7.6.88**

Applications are invited by the Director for the following post.

Assistant Administrative Officer

One post (Un-reserved)—Temporary but likely to continue

Pay Scale : 2,000-60-2,300-EB-75-3,200-100-3,500.

Qualifications and Experience

Essential :

First or high Second Class Degree in Arts/Science/Commerce, Business Management or Personnel Management with ten years experience out of which five years experience should be in Supervisory position of establishment work in a government department or Corporation or an autonomous body. The candidate should be conversant with Government Rules and regulations in establishment and accounts matter.

Job Requirement

He will be responsible for administrative activities like recruitment, assessment promotions, personnel management maintenance of a fleet of vehicles and administrative works on scientific activities of the Institute etc.

Age : Maximum 40 years.

General Conditions

1. He will be paid allowances as per Institute rules.
2. Age relaxable to SC/ST candidates as per rules.
3. Candidates desiring to join on deputation terms will also be considered for selection.
4. Application may be made on plain paper giving the following particulars with copies of Certificates :
    (i) Post applied with Advt. No.
    (ii) Name of the applicant
    (iii) Father's Name
    (iv) Date of birth
    (v) Address of communication
    (vi) Qualifications from High School onwards mentioning examinations passed, class/grade obtained, year of passing, Board/University and subjects taken.
    (vii) Present status and basic pay
    (viii) Experience of previous employment giving names of the employer and post held.
    (ix) Nature of duties performed
    (x) Name and address of two referees
    (xi) Particulars of postal orders
    (xii) Any other information that the applicant may like to give.
5. A crossed non-refundable current Indian Postal order for Rs. 8/- (Rs. 2/- in case of SC/ST candidates) drawn in favour of Director, W.I.H.G. payable at Dehra Dun, should be sent alongwith the application. Completed applications should reach the Registrar on or before **30.6.1988**. Candidates already in service must apply through proper channel. Incomplete applications not accompanied by the Postal orders and copies of certificates are to be rejected.
6. All applications received will be considered by a Screening Committee for short listing and Screening Committee may restrict the numbers of candidates for interview on the basis of qualifications and experience higher than the minimum prescribed. The Director also reserves the right of rejecting any or all applications without assigning any reason thereof. The Institute reserves the right not to fill the post advertised if deemed necessary.
7. Canvassing in any form and/or bringing any influence will be treated as a disqualification.
8. No interim enquiries will be entertained.

G.R.K. Nair
REGISTRAR

CLASSIFIED ADVERTISEMENTS

HARYANA AGRICULTURAL UNIVERSITY

HISAR

Advertisement No. 2/88

Applications are invited for following posts on the prescribed proforma obtainable from Assistant Registrar (Faculty), Haryana Agricultural University, Hisar by sending self-addressed unstamped envelope size 23 x 10 Cm. alongwith Indian Postal Order of Rs. 2/- in the name of Assistant Registrar (General) or on payment of Re 1/- in cash at the counter. Candidates already in service must apply through proper channel. Applications complete in all respects accompanied by a fee of Rs. 20/- for posts at Sr. No. 1 to 4, Rs. 15/- for posts at Sr. No. 5 to 17 and Rs. 10/- for post at Sr. No. 18 in the form of Indian Postal Order in the name of Assistant Registrar (General), Haryana Agricultural University, Hisar, payable at HAU Post Office, Hisar should reach the Registrar by 11.7.1988 (23.7.88 for candidates residing abroad). Incomplete applications and those received late will not be considered. Benefit of Contributory Provident Fund and Leave etc. admissible as per University Rules. The applicants must possess prescribed qualifications and experience on the last date for receipt of applications. However, those who have submitted their thesis (Master's/Doctorate's level) by the last date of receipt of applications are also eligible to apply. The date of submission of thesis must be supported by a certificate duly signed by the concerned authority of the institution. They will be considered by the Selection Committee only if thy produce the completion certificate of Master's/Doctorate degree at the time of interview. The envelope containing application must be superscribed as "APPLICATION FOR THE POST——"

1. **Associate Professor (Radiology)**—One : **Essential :** (i) Second class B.V.Sc. & A.H., (ii) Second class M.V.Sc. degree in Vety. Surgery, (iii) Ph. D. in Vety. Surgery, (iv) Five years experience of teaching/research/extension in Vety. Surgery & Radiology. **Desirable :** Incumbent with teaching and research experience in the field of Vety. Radiology will be preferred.

2. **Research Scientist ((Anaesthesia)**—One : (Reserved for Scheduled Caste) : (i) Second class B.V.Sc. & A.H.; (ii) Second class M.V.Sc. in Surgery; (iii) Ph.D. in Surgery; (iv) Five years experience in teaching/research/extension in Vety. Surgery & Radiology. **Desirable:** Advanced training in Vety. Surgery.

3. **Scientist (Forestry)**—One (Reserved for Scheduled Caste) : **Essential :** (i) Second class B.Sc./B Sc. (Agri.)/B. Tech./B.E ; (ii) Second class A.I.F.C. (Associate of Indian Forest College); (iii) Second class Master's degree in Forestry or equivalent; (iv) Ph.D. in Forestry; (v) Five years experience in Forestry. **Desirable :** Training experience in forestry education/research.

4. **Associate Professor (Clothing & Textiles)**—One : **Essential :** (i) 2nd class B.Sc. (Home Science); (ii) Second class M.Sc. in Clothing & Textiles; (iii) Ten years experience in teaching/research/extension in clothing and textiles or allied fields. **Desirable :** Ph.D. in Clothing and Textiles or allied fields.

Note : Preference will be given to candidates having Ph. D. qualifications.

5. **Assistant Professor (Mathematics)**—One (For Agriculture College, Kaul : (i) Atleast 2nd class at Bachelor's level. (ii) Master's degres in first class or with an OGPA of not less than 3.2/4.00 or equivalent in the field concerned.

OR

Atleast 2nd class Master's degree followed by Ph.D. in the discipline concerned.

6. **Assistant Scientist (Agricultural Physics)**—One (Reserved for Scheduled Caste) (i) Second class B.Sc./B.Sc. (Ag.) (ii) Master's degree in first class or with an OGPA of not less than 3 2/4.00 or equivalent in Agril. Meteorology/Meteorology or Physics/Agril. Physics with training in Agrii. Meteorology. OR Atleast second class Master's degree followed by Ph D. in Agril. Meteorology or Meteorology/Physics/Agril. Physics with specialisation in Agrimeteorology/Agril. Physics.

7. **Assistant Professor (Agril. Engineering)**—One : with specialisation Farm Machinery and Power (Reserved for Backward Class)—For College of Agriculture, Kaul).

8. **Assistant Professor (Agril. Engineering)**—Two : One each in the discipline of Process Engineering (reserved for Backward Class) & Mechanical Engg. (reserved for S.C)

9. **District Extension Specialist (Agril. Engineering)**—Four (Reserved for Scheduled Caste).]

Qualifications for the Posts at Sr. No. 7 to 9 : Atleast 2nd ciass Bachelor's degree in the discipline mentioned against the posts followed by first class Master's degree in the concerned discipline/specialization.

10. **Assistant Professor (Veterinary Surgery)**—One (Reserved for Scheduled Caste).

11. **Assistant Scientist (Vety. Microbiology)**—One (Reserved for Scheduled Caste).

12. **District Extension Specialist (Veterinary)**—One (for Kurukshetra) (Reserved for Ex-Servicemen).

13. **District Extension Specialist (Entomology)** for Sirsa—One (Reserved for Scheduled Castes).

14. **Assistant Professor (Physics)**—One (Reserved for Ex-Servicemen).

15. **Assistant Professor (Family Resource Management)** - One (Reserved for Backward Class)

16. **Assistant Scientist (Foods & Nutrition)**—One (Reserved for Scheduled Caste).

Qualifications for the posts at Sr. 10 to 16 : (i) Atleast 2nd class at Bachelor's level in respective faculties i.e for posts at Sr. No. 10-12, B.V. Sc. & A.H., for Sr. No. 13, 14B. Sc. (Agri.), B.Sc. (Hons.) Agri. and for posts at Sr. No 15 & 16 B.Sc (Home Science/B.Sc.)

(ii) Master's degree in the first class or with an OGPA of not less than 3.2/4.00 or equivalent in the discipline mentioned against each post, or atleast second class Master's degree followed by Ph.D. in the disciplines mentioned against each.

Note : (1) One or more qualifications relaxable in case of candidates found otherwise very suitable.

(2) Persons who do not possess Ph.D. at the time of their

selection shall not be allowed to cross the stage of Rs. 1300/- in the scale of Rs. 700-1600.

(3) Special weightage will be given to extension experience possessed by the candidates, for posts in the disciplines amenable to extension education.

(4) Experience will be counted after a candidate obtains his M.Sc. degree. Further a period of 3 years towards obtaining Ph.D. degree shall be excluded from the experience.

(5) The qualifications regarding experience are relaxable at the discretion of the competent authority in the case of candidates belonging to the Scheduled Castes if, at any stage of selection, sufficient number of candidates from these communities possessing the requisite experience are not likely to be available.

17. Assistant Procurement Officer—One : (i) B.Sc. (Agri)/B.Sc. (Dairying) B.Sc. (An.Sc.)/B.Sc. in the second division. (ii) Five years experience of purchases & handling of livestock feed in organisations like Haryana Agricultural Marketing Federation (HAFED) and other Agro-based industries.

OR

Ten years experience of handling of stores and purchases.

18. School Teacher (Physical Education)—One

Essential : (A) (a) A Bachelor's degree in Physical Education of 3 years duration of recognised University OR

(b) Degree of B.P. Ed. of a recognised University. OR

D. P.Ed. awarded by a recognised University/Institution after training of a minimum one academic session, provided that the admission qualifications for the diploma is at least a University degree.

(B) Two years experience in a school.

Desirable : (i) Teaching experience in CBSE affiliated school.

(ii) Active participation in co-curricular activities and ability to organise such activities in the school.

Note : Experience at (B) above relaxable in case of outstanding sportsman/position holder in Haryana State.

Note : 1. If suitable candidates for posts at Sr. No. 2, 3, 6 to 11, 13, 15 & 16 from Scheduled Caste category are not available for the posts reserved for them, these vacancies shall be filled up first from the Backward Class candidates. Likewise, if suitable candidates for Backward Classes are not available then these will be thrown open first to the Scheduled Caste candidates. However, in case suitable candidates belonging to either of the two categories in respect of the posts meant for both the categories (Scheduled Castes as well as Backward Classes) are not available, then such vacancies shall be filled up from the General Category.

2. The benefit of reservation will be admissible only to those Scheduled Castes, Backward Classes and Ex-Servicemen candidates who are domiciles of Haryana State.

3. Number of vacancies mentioned against each post can vary.

4. Indian Postal Orders purchased before **11 6 88** will not be entertained.

PAY SCALES

Sr. No of Post.	Pay Scales	Total emoluments at the initial of the Pay Scale (exclusive of House Rent and C.C.A.)	
1—4	Rs. 1200-50-1300-60-1900	Likely to be revised on UGC pattern.	Rs. 3019/-
5—16	Rs. 700-40-1100-50-/Assessment —1600.		Rs. 2059/-
17	Rs. 2000-60-2300-EB-75-3200	Revised State pattern	Rs. 2260/-
18	Rs. 1400-40-1600-50-2300 EB-60-2600.		Rs. 1582/-

REGISTRAR

ENGINEERING COLLEGE

KOTA—324 007

(An Autonomous Institution of Govt. of Rajasthan)

Advt. No. ECK/Estt/3/88 **Dated : 6 6.1988**

Applications on the prescribed form are invited for the following posts :

Post	Civil	Electrical/ Electronics	Mechanical
Readers	3	4	2
Lecturers	—	6	2

Qualifications and pay scales are as per UGC rules. Suitable candidates belonging to SC/ST will be preferred for the post of Lecturers. Last date for receipt of application is **1.8.1988**.

Prescribed form and other particulars may be obtained by sending an IPO for Rs. 2/- along with a self-addressed envelope (24 cm x 10 cm) duly stamped (Re. 1-) from the undersigned.

R.K. Jain
REGISTRAR

MANIPUR AGRICULTURAL COLLEGE SOCIETY

POST BOX NO. 31
IROISEMBA, IMPHAL-795001

Advt. No. Agri-College/1/2/79, Vol-V.

Dated the 28th May, 88

Application from intending candidates on plain paper giving full bio-data as per following items along with Crossed Indian Postal Order for Rs. 7.50 (Rs.1.90 only in case of SC/ST candidates) drawn in favour of Member Secertary, Manipur Agricultural College Society, Iroisemba, Imphal are invited for the undermentioned posts in Manipur Agricultural College,

1. 2 (Two) posts of **Professor.** 1 (one) post of Crop Science and 1 (one) post of fundamental Science including Soil Science.

2. 4 (four) posts of **Associate Professors.**
   1 (one) post of Extn-Edn.
   1 (one) post of Entomology
   1 (one) post of Agril. Economics &
   1 (one) post of Soil-Science.

3. 5 (five) posts of **Asstt. Professors.** 2 (two) Posts Agronomy, 2 (two) posts of Plant Breeding and Genetics and 1 (one) post of Plant Pathology.

4. 1 (one) post of **Farm Supdt.** For College farms,

Scale of Pay

Professor—Rs. 1500-60-1800-100-2000-125-2500/- Pre-revised).

Assoc. Prof.—Rs. 1200-50-1300-60-1900/- (Pre-revised).

Asstt. Prof.—Rs. 700-40-1100-50-1600/- (Pre-revised).

Farm Supdt.—Rs. 800-40-1360-EB-45-1675/- (Pre-revised).

Qualifications

A. Professor. Essential

(i) Bachelor's degree in Agricultural Science followed by Master's degree in the concerned discipline.

(ii) Doctorate degree in any field of the concerned discipline.

(iii) Specialisation in concerned field with evidence of published work in standard journal or research.

(iv) At least 10 yrs. of service experience in teaching and/or research and/or extension after obtaining the Master's degree out of which 5 yrs. of experience shall be in the rank of Asso. Prof. or equivalent post on the last date fixed for receiving application.

Desirable

(i) Qualities of leadership and ability to plan, coordinate/conduct and guide teaching and/or research and/or extention education programme.

(ii) Experience of teaching P.G. course and/or guiding/conducting Research or Extension programme.

(iii) Knowledge of rural Agricultural situation in North Eastern Region of India.

B. Associate Professor : Essential

(i) Consistently good academic record with first or high second class Master's degree in the relevant subjects or an equivalent degree of Foreign University.

(ii) A Doctorate Degree or published research work of an equally high standard; and

(iii) Five year's teaching/research experience in the field study.

Desirable

(i) Capacity to guide research.

(ii) Knowledge of local crops and field conditions.

C. Asstt. Prof : Essential

(i) Consistently good academic record with first or high 2nd class Master's degree in the relevant subject or an equivalent degree of Foreign University.

Desirable

(i) Two years teaching/research experience in the field of study.

(ii) A Doctorate degree or published research work or an equal standard; and

(iii) Knowledge of local crops and field condition.

D. Farm Superintendent

Essential

(i) First class Bachelor's Degree in Agriculture or Horticulture.

(ii) Five years experience in farm or orchard management.

Desirable

(i) Knowledge of local crops and field conditions.

(ii) Knowledge of local language.

Items of Bio-data to be furnished

(1) Full name, (2) Permanent address, (3) Present postal address, (4) Father's Name, (5) Father's permanent address, (6) Nationality, (7) Religion, (8) Date of birth and Place of birth, (9) Marital status, (10) Whether belongs to SC/ST (certificate to be submitted if belongs to any of the said category), (11) Academic qualification beginning from Matriculation/equivalent standard, (12) Experience, (13) Research works as evidenced by published papers (copy to be enclosed), (14) Name and address of at least 2 (two) referees (not related to the candidate) and (15) Any other information which the candidate wants to furnish but not covered by the above items.

All the posts are temporary but likely to continue indefinitely. 31% and 2% of the vacancies are reserved for ST and SC candidates respectively subject to their fulfilling the qualifications and standard prescribed above.

Applications complete in all respects mentioning the post applied for along with attested copies of the certificates, marksheets, testimonials, publication (if any) etc. must reach the office of the undersigned on or before 8.7.88 during office hours. Persons already in service should apply through proper channel.

Candidates who are called for interview will be given railway fare of admissible class for the journey from the place of origin and back or actual expenses on fare, whichever is less.

S. Bapu Singh
MEMBER SECRETARY

UNIVERSITY OF NORTH BENGAL

No. F. 22/Advt./Estt./24/R-88

Dated: 10.6.88.

Applications in prescribed forms are invited from Indian Citizens for the following posts :

(A) Professor of Computer Science :
Post one

Essential qualification : (a) M.E./M. Tech. in Computer Science, Electronics and Telecommunication, Radiophysics and Electronics or MCA or M.Sc. in Mathematics, Statistics, Computer Science or in relevant/related subject or an equivalent degree of a foreign University with consistently good academic records.

Good knowledge of modern High level languages and system softwares.

(c) Proven ability to guide research at doctoral level.

(d) About 10 years experience in teaching and/or Research.

Desirable : Ph.D. or equivalent published work.

(B) Reader in Computer Science :
Posts two

Essential qualification : Same (a), (b) & (c) as above. (d) About 5 years experience of teaching and/or Research. **Desirable :** Same as above.

(C) Lecturer in Computer Science :
Posts three

Essential Qualification : Same (a) & (b) as above.

Desirable : Teaching experience at DCA/MCA level.

For the above posts the qualifications may be relaxed at the discretion of the selection committee,

Choice of selection committee may not necessarily be confined to those who apply formally. No application except in prescribed application forms will be considered.

Note : A person applying for more than one post should send separate applications for each post.

Scales of Pay : Professor : Rs. 1500-2500/-, Reader : Rs. 1200-1900/- and Lecturer: Rs. 700-1600/- respectively with other allowances and benefits as per University rules.

Prescribed application forms may be obtained from the office of the Registrar personally on payment of Rs. 5/- (Rs 3/- for S.C./S.T.) in cash at the University Cash Counter or by sending a self-addressed envelope of 25x13 cms. affixed with stamps worth Rs 3/- accompanied by crossed I.P.O /Bank Draft of Rs. 5/- (Rs. 3/- for S.C./S.T.) in favour of the University of North Bengal. Filled in application forms (7 copies) along with one self addressed unstamped envelope must reach the office of the Registrar, P.O. North Bengal University, Dist. Darjeeling, Pin : 734430 on or before **20.7.88**.

REGISTRAR

THE UNIVERSITY OF BURDWAN
RAJBATI : BURDWAN
WEST BENGAL

ADVERTISEMENT NO. 1/88-89

Dated : 9th June, 1988.

Applications in the prescribed form are invited for the following posts :

- **A. Registrar**
- **B. Estate Officer**
- **C. Part-time Lady Medical Officer**

Scale of Pay :

For A : Rs. 1500-60-1800 - 100 - 2000-125/2-2500/-
For B : Rs. 700-40-1100-50-1600/-

The posts carry dearness and other admissible allowances according to the University Rules.

Monthly honorarium for Part-time Lady Medical Officer :

Rs. 400/- per month including conveyance allowances.

Educational Qualifications & Experience Required

For post indicated at "A" :

(a) Essential

(i) Uniformly good academic record with a B+Master's Degree or its equivalent
(ii) At least 15 years' experience in Academic Institutions like University or in an Institute of higher learning of which 5 years must be in high level administration in a University or in an Institute of Post-Graduate Study.
(iii) Age not less than 40 years. Relaxable in the case of exceptionally qualified candidates.

(b) Desirable

(i) A Doctorate Degree or published research work of merit :
or
(ii) High level administrative experience in a Government or Quasi-Government Organisation or a Good background in administration and management in senior position.

For the post indicated at "B" :

(a) Essential

(i) A Degree in Law or Management.
(ii) At least 5 years' experience in dealing with matters for upkeeping of an estate including management of properties, control of personnel and the like.
(iii) Age not below 30 years. Relaxable in the case of exceptionally qualified candidates.

(b) Desirable

Experience in gardening/landscaping-or experience in inventory control or as legal consultant to a large scale industrial concern.

For the post indicated at "C" :

M.B.B.S. with 3 years' experience. Preference will be given to Diploma in Gynaecology & Obstetrics.

Age : Not ordinarily above 35 years. Relaxable in the case of exceptionally qualified candidates.

The choice of the Selection Committee may not necessarily be confined to those who apply formally.

For application form and other information, apply to the Registrar, University of Burdwan with a self-addressed stamped (Re. 1/-) envelope (9"x4").

Last date for submission of application with the requisite fee of Rs. 5/- is **29th June, 1988.**

P. Banerjee
REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY

P.O. IIT POWAI, BOMBAY-400076

ADVERTISEMENT NO : C-219/87-88

Applications are invited for the post of Assistant Registrar (Academic) in the prescribed form obtainable from the Registrar on request accompanied by self-addressed envelope (23 cm x 10 cm). Persons employed in Government/Semi-Government Organisations or Educational Institutions must apply through proper channel. Forms will be supplied upto 30th June, 1988 and completed applications together with crossed I.P.O for Rs. 7.50 as application fee should reach the Registrar by the **15th July, 1988**. (No application fee need be sent by SC/ST candidates).

Outstation candidates called for interview will be paid first class rail fare from the place of their residence to Bombay and back by the shortest route. Relaxation of standard for SC/ST candidates exists as per Government of India rules.

Scale of Pay: Rs. 700-40-1100-50-1600. (Likely to be revised). Total emoluments on the minimum of the scale Rs. 2785/- approx.

Job Description: Subject to the control of the Dean (A.P.), Registrar and Deputy Registrar (Academic), the appointee will be responsible for all matters concerning the planning and organisation of examinations, the maintenance, of students academic records, award of scholarships, maintenance of Senate records and implementation of Senate decisions, organisation of annual convocation etc. The job requires familiarity with academic rules and regulations.

Qualifications: A good Bachelor's degree in Arts, Science, Commerce, Engineering or Technology of a recognised University together with a post-graduate degree or Diploma in any of the above field or in public administration/management of a recognised institute/university or its equivalent; or recognised qualifications as Chartered/Cost/SAS Accountant.

Experience: A minimum of 8 year relevant administrative experience preferably in a Government, Educational or Research Institute or in a Commercial Organisation of a national standing. The candidates would be expected to have some familiarity with academic activities and working procedure in higher educational institutions.

Desirable: (1) Teaching and research experience or experience of a life on a residential educational campus. (2) Experience of Computer System for information processing and retrieval.

In the case of candidates with exceptional qualifications length of experience may be relaxed suitably.

REGISTRAR

MAHARSHI DAYANAND UNIVERSITY

ROHTAK

Advertisement No. 4/88

Applications on prescribed form are invited for the following posts:

Professors: Pharmaceutical Sciences-(One)—Sir Chhotu Ram Chair—(One),—Jawahar Lal Nehru Chair in the Department of History—(one).

Readers: Pharmaceutical Sciences—(One), Chemistry—(one).

Lecturers: Pharmaceutical Sciences—(one), Public Administration—(two), Geography—(two) (leave vacancy), Pol. Science—(One).

Specialisation

Professor—Sir Chhotu Ram Chair: An eminent scholar in the field of Pol. Science/History/Economics.

Professor—Jawahar Lal Nehru Chair: Ancient Indian History and Archaeology/History of Haryana/Social and Economic History of Modern India.

Reader in Chemistry: Organic/Physical Chemistry

For first

Lecturer in Geography: Pol. Geography with competence to teach Geomorphology.

For Second: Regional Development/Regional Planning and Geography of Human Welfare. (S. Geog.) (Preference shall be given for both the posts to candidates with advanced knowledge of/or evidence of application in research of advanced quantitative Techniques.

Qualifications for Pharmaceutical Sciences Deptt's Posts

Professor: A scholar of eminence in the field of Pharmaceutical Sciences. Independent Published work of high standard. Teaching/Guiding Research/Industrial/Professional experience for a considerable period desirable.

Reader: Good academic record with first or high second class Master's Degree in Pharmacy with Doctor's Degree or equivalent published work.

Independent published work (in addition to the published work mentioned above) with at least 8 years' Teaching/Guiding Research/Industrial/Professional experience eesential.

Lecturer

Essential: Consistently good Academic record with a first or high second class (B+) Master's Degree or an equivalent Degree of a Foreign University in Pharmacy.

Desirable: (in order of preference):

(i) A Doctor's Degree / Evidence of research work of aquivalent standard in Pharmacy.

(ii) Teaching experience of Degree/Post-Graduate classes.

Provided that if a teacher is not a Ph.D. at the time of his/her appointment and does not qualify himself/herself for the award of a Ph.D. Degree from a recognised University in the subject which is being taught by him/her within the prescribed time/limit, he/she shall not be entitled to any future increments beyond the stage of Rs. 3400/- till such time he/she fulfils the above mentioned requirements.

(For other posts, U.G.C.'s qualifications).

U.G.C. qualifications and pay scales for all categories of the teaching posts. Other allowances and benefits of Contributory Provident Fund for all teaching and non-teaching posts admissible as per University rules. Higher start admissible in deserving cases. Knowledge of Hindi essential for all posts. Number of posts is liable to be increased or decreased.

The applications will be screened by the Committee to be appointed by the Vice-Chancellor. The Screening Committee will be competent to screen applicant and classify them on the basis of qualifications and experience and call for interview only the selected candidates.

Reservation for Ex servicemen/B.C./S.C./S.T. candidates as per rules. However, where the candidates under reserved categories are not available, the posts will be filled from amongst the general category's candidates.

Applications for the teaching posts are to be submitted on the form prescribed for Class 'A' Officers alongwith attested testimonials and crossed Postal Order (s) for Rs. 10i- drawn in favour of the Finance Officer, M.D. University, Rohtak, payable at the Post Office, Rohtak. Applications (through proper channel from those in employment) complete in all respects should reach the Assistant Registrar (Estt.) (Teaching), M.D. University, Rohtak by **7.7.1980**. The application forms can be had from the Press Manager, M.D. University, Rohtak on payment of Rs. 2/- at the counter and Rs. 3/- by ordinary post.

CORRIGENDUM IN RESPECT OF ADVERTISEMENT NO. 2/88.

(The Hindustan Times 24.5.1988 and The Tribune 27.5.88).

1. The field of specialisation for the post of Lecturer in Psychology should be read as Environmental/Industrial and Organisational/Community Psychology / Behaviour Genetics/Psychopharmacology."
2. The number of posts of Temporary Lecturers in B.Ed. Correspondence Cell may be read as 20 out of which 5 are likely to continue.
3. The number of posts of Lecturer in History may be read as 3.
4. Specialisation for the post of Reader in History may be read as "Indian History."

REGISTRAR

HARYANA AGRICULTURAL UNIVERSITY

HISAR

CORRIGENDUM NO. 3 TO ADVERTISEMENT NO. 1/88

With reference to our advertisement No. 1/88 published in these columns on **15.2.1988**, the designation of the post of Senior Acarologist in the Scale of Rs. 1200-1900 (Sr No. 11) may be read as Acarologist. Other conditions will remain unchanged.

REGISTRAR

THE KASTURBA MEDICAL COLLEGE

MANIPAL, D.K.

NOTIFICATION

Admission to

"POST-GRADUATE DIPLOMA COURSE IN YOGA THERAPY"

AFFILIATED TO MANGALORE UNIVERSITY

Applications are invited from eligible candidates for admission to the "Postgraduate Diploma Course in Yoga Therapy", affiliated to Mangalore University at the Kasturba Medical College, Manipal. This is a unique course in India. The duration of the course is one year. Candidates seeking admission to the course must be a graduate. The prescribed application form can be had from the Principal, Kasturba Medical College, Manipal-576 119, by sending a crossed postal order of Rs. 10/- drawn in favour of "The Principal, Kasturba Medical College, Manipal", along with a self addressed Re. 1/- stamped envelope of 9" x 4" size. The last date for receipt of the filled up application form is **8th July, 1988.**

MIRANDA HOUSE
UNIVERSITY COLLEGE FOR WOMEN

UNIVERSITY OF DELHI

PATEL CHEST MARG,
DELHI-110007

Applications on the prescribed forms are invited for the post of lady lecturers in the following subjects so as to reach the office of the Principal latest by **15th July, 1988.**

Subject	No. of vacancies & nature of post.	
	Permanent	Temporary
English	1	1 or 2
Economics	—	1
Sociology	—	1
Political Science	1	—
Physics	—	1
Zoology	—	1

Scale of Pay: Rs. 2200-75-2800-100-4000.

Qualifications required : As per Delhi University rules. Details will be supplied alongwith prescribed forms.

For prescribed application forms and details of qualifications prescribed for various posts, please send your written request alongwith a self addressed 60 paise stamped envelope of the size 9" x 4" before 1-7-1988. These can be collected in person also from the College office on all working days (Monday to Friday) between 9.30 a.m. and 12 noon.

Note : 1. Applications should be made on the prescribed forms only.

2. Candidates already in employment should send their applications through their employers.

3. Applications received after the last date prescribed will not be considered.

4. It will be open to the college authorities to alter anytime hereafter, the member, nature, duration of vacancies, without notice.

5. Temporary vacancies mentioned above are leave vacancies.

6. Canvassing in any form will disqualify a candidate.

PUNJABI UNIVERSITY
PATIALA

Advt No. 10/Rect./PRO

Applications are invited|for the post of Registrar (Grade Rs. 1775-75-2000/100-2400+100/- special pay) on the prescribed form available from the Head of the University Publication Bureau on payment of Rs./- at the counter or by sending a crossed IPO, drawn in favour of the Registrar alongwith a self-addressed envelope of the size 25 x 10 cms. stamped with postage worth Rs. 5.50 and superscribed at the top, APPLICATION FOR THE POST OF REGISTRAR, so as to reach the undersigned by **July 6, 1988** and through proper channel within **7 days thereafter :**

Qualifications

At least a second Class Master's degree from an Indian University or equivalent qualifications from a foreign University with at least 10 years experience in a responsible administrative position in a University/Educational Institution or Government Office.

Note :

1. Candidates must possess working knowledge of Punjabi.
2. The Selection Committee might relax the qualifications and experience in exceptional cases.
3. Those who have applied earlier for this post, need not apply again.

REGISTRAR

POST GRADUATE INSTITUTE OF MEDICAL EDUCATION & RESEARCH, CHANDIGARH

ADMISSION NOTICE NO. 2/88

Applications on prescribed form are invited by **Second July, 1988** for the following courses commencing at the Institute from July, 1988 :

I. M.Sc. (Biochemistry)

Minimum admission requirements : B.Sc. or B.Sc. (Hons.) or B.Sc. (Anatomy, Physiology and Biochemistry taken together) with 55% marks for general candidates and 50% marks for candidates belonging to Sch. Castes/Tribes.

Duration of the Course : 2 academic years for those with B.Sc. and having Chemistry as a major subject or B.Sc. (Hons.) in Biochemistry or B.Sc. (Anatomy, Physiology and Biochemistry taken together) and 3 years for those, who have passed B.Sc. (Hons.) with Chemistry as a minor or subsidiary subject.

II. M.Sc. (Pharmacology)

Minimum admission requirements : MBBS or B.Sc. (Anatomy, Physiology and Biochemistry taken together) passed or B.V.Sc. or B.Pharm passed from a recognised University.

Duration of the Course : 3 academic years.

Application form and detailed information are available from the office of the undersigned either personally on payment of Rs. 5/- at the counter (from 11 A.M. to 12 Noon and 3 P.M. to 4 P.M. on all working days) or by post for which the request must be accompanied with a self-addressed envelope size (23 cms. × 10 cms.) bearing postage stamps of Rs. 4/- and a crossed postal order/bank draft for Rs. 5/- drawn in favour of the Director of the Institute.

048/CH **REGISTRAR**

MAHARSHI DAYANAND UNIVERSITY

ROHTAK

Advertisement No. 3/88

Applications on prescribed proforma are invited for the following posts:

1. **Assistant Director (Adult Education)-1**
(temporary upto 31.3.1995)
(Rs. 1200-50-1300-60-1900) (UGC)

Qualifications

(a) (i) A candidate holding a Ph.D./M.Phil. degree should possess atleast a second class Master's degree.

OR

(ii) A candidate without a Ph.D. degree should possess a high second class Master's degree and second class in the Bachelor's degree;

OR

(iii) A candidate not possessing Ph.D. degree but possessing second class Master's degree should have obtained First class in the Bachelor's degree.

(b) About five years experience of field work/teaching or research in a subject having bearing on Adult/Continuing / Extension/ Community/Non-formal Education or Community Development. This condition may be relaxed on the recommendation of the Selection Committee,

2. **Project Officer (Adult Education)—1**
(temporary upto 31.3.1995)
(Rs. 700-40-1100-50-1600) (UGC)

Qualifications

Essential-1

(i) Good academic record in the subject of Adult / Continuing/ Community/Extension Education/ Community Development from a recognised Indian University or an equivalent degree from a foreign University.

(ii) M.Phil. or Ph.D. in a subject related to Adult learning or Ph.D. in a subject under Social Sciences or Education or Evidence of published learning materials and learning resources on areas as listed (i) above or published research in any of the relevant area/areas indicated above.

OR

(i) Good academic record in Social Sciences/Social Work/Humanities / Education / Science / Home Science.

(ii) Post Master's diploma in Adult & Continuing Education from a recognised Indian University or an equivalent diploma/degree from a foreign University.

(iii) M.Phil. or Ph.D. in a subject related to Adult learning or a Ph.D. in a subject under Social Sciences or Education or Evidence of published learning materials and learning resources on areas listed in Adult/Continuing/Community / Extension Education/ Community Development or published research in any of these area/areas.

Desirable

Two years experience of field work on a subject having bearing on Adult/ Continuing/Extension/Community / Non formal Education/Community Development;

OR

Two years teaching experience in the subject of Adult and Continuing Education at graduate/post-graduate levels.

3. **Assistant Sports Officer-2 (Male & Female)**
(Rs. 1640-60-2600-EB-75-2900)

Qualifications

M.A. (Physical Education) or M.P.Ed. in the second Division. Preference will be given to N.I.S. trained persons.

4. **Assistant Director Youth Welfare-1**
(Rs. 1600-50-2300-EB-60-2660)

Qualifications

Essential

Atleast second class Master's degree with atleast five years experience of organising Youth leadership training Camp, Youth Festivals and other related activities.

Desirable

Flair for dramatics.

5. **Laboratory Supervisor-1** (Physics Dept.)
(Rs. 1600-50-2300-EB-60-2660)

Qualifications

Essential

(i) Matric with Science with about 10 years experience of working as Head Laboratory Assistant/Sr. Store-keeper in a University post-graduate dept.

OR

B.Sc. with about 5 years' experience of working as Head Laboratory Assistant/Sr. Store-keeper in post-graduate Department.

Desirable

(ii) Experience of dealing with purchase, import of chemicals, glass-apparatus, scientific instruments and handling of store/supervision of Laboratory staff.

(iii) Knowledge of typing will be considered as an additional qualification. Qualification may be relaxed in case of candidates found otherwise suitable,

6. **Technical Assistant-1 (Physics Dept.)**
(Rs. 1600-50-2300-EB-60-2660)

Qualifications

Diploma of 3 years' course in Electronics or equivalent certificate from a recognised institution. Two years' experience of maintenance and repair of electronics instruments in teaching/ research institution would be preferred.

Qualifications may be relaxed in case of candidates found otherwise suitable.

7, **Statistical Assistant-1**
(Rs. 1400-40-1600-50-2300-EB-60-2600)

Qualifications

Graduate with Economics or Mathematics or Commerce or Statistics as one of the elective subjects. Five years experience in a Govt./Semi Govt. office. Persons having experience of collection of statistical data will be preferred.

8. **Proof Reader Gr. I—1**
(Rs. 1400-40-1600-50-2300-EB-60-2600)

Qualifications

Atleast a graduate degree with five years experience as Proof Reader in a University/Govt. office or a reputed concern. Knowledge of Hindi and English is essential.

9. **Steno-Typists-14**
(Rs. 950-20-1150-EB-25-1500)

Qualifications

Second class Matriculate/Hr. Secondary / Pre-University/Intermediate or B.A/B.Sc./B.Com. 80 w.p.m. speed in English shorthand and to transcribe it at the speed of 15 w.p.m.

10. **Clerk-Cum-Typists—27**
(Rs. 950-20-1150-EB-25-1500)

Qualifications

Matriculation/Hr. Secondary/Pre-University atleast in Ist Division or atleast a graduate. Candidates will be required to qualify a written-test and a test in typewriting at the speed of 30 w.p m. in English/Hindi, relaxable in the case of Graduates.

11. **Junior Store-Keeper-1** (Geography Dept.)
(Rs. 950-20-1150-EB-25-1500)

Qualifications

B.A./B.Sc. with Geography as one of the papers at the graduate level. The candidate should have atleast two years experience as Store-keeper of a University level or equivalent thereof. Preference will be given to those who have the knowledge of typewriting (English).

12. **Junior Store-Keeper-1** (Physics Dept.)
(Rs. 950-20-1150-EB-25-1500)

Qualifications

B.A/B.Sc. with physics as one of the papers at the graduate level. The candidate should have atleast two years experience as Store-keeper of a University level or equivalent thereof. Preference will be given to those who have the knowledge of typewriting (English).

13. **Compositors-6**
(Rs. 950-20-1150-EB-25-1500)

Qualifications

(i) Atleast Matric;
(ii) Seven years experience of Hindi & English Composing in a Press of repute.

14. **Distributors-2**
(Rs. 950-20-1150-EB-25-1500)

Qualifications

Atleast Matric. Knowledge of composing and distributing both English & Hindi. Atleast three years experience of composing and distributing in a Press of repute.

15. **Copy Holders-2**
(Rs. 950-20-1150-EB-25-1500)

Qualifications

Matric 2nd Division with proficiency in reading Hindi & English. Two years experience as Copy Holder in a reputed Press.

16. **Dance Teacher-1**
(Rs. 1200-30-1560-EB-40-2040)

Qualifications

(i) M.A. in Dance
OR
(ii) Nritya Bhaskra (Master in Dance
OR
(iii) A professional or Traditional artist with highly commendable professional achievements in dance with [atleast 10 years' experience.

17. **Senior Binder-1**
(Rs. 950-20-1150-EB-25-1500)

Qualifications

Atleast Matriculate with seven years' practical experience of all aspects of quality binding, iucluding warehouse machine, cutting, ruling, folding, stitching, tooling etc.

18. **Ruling Master-1**
(Rs. 950-20-1150-EB-25-1500)

Qualifications

Literate with three years experience of the line.

19. **Restorer-I**
(Rs. 950-20-1150-EB-25-1500)

Qualifications

Matriculate with atleast two years' experience as Library Attendant.

20. **Library Attendants-4**
(Rs. 950-20-1150-EB-25-1400)

Qualifications

Matriculation only.

21. **Ruling Assistant-1**
(Rs. 775-12-955-EB-14-1025)

Qualifications

Literate with one years' experience of the line.

22. **Junior Binders-2**
(Rs. 775-12-955-EB-14-1025)

Qualifications

(i) atleast Middle;
(ii) three years practical experience of all Binding Operations including warehouse machines, cutting, ruling, folding, stitching embossing, perforating etc.

23. **Binding Helpers-2**
(Rs. 750-12-870-EB-14-940)

Qualifications

Literate with two years experience.

24. **Lab. Bearer-1**
(Rs. 750-12-870-EB-14-940)

Qualifications

Matric with Science.

Age for all posts not below **18 years.**

Other allowances and benefits of Contributory Provident Fund for all posts admissible as per University rules. Higher start admissible in deserving cases. Knowledge of Hindi essential for all posts. Number of posts is liable to be increased or decreased. Qualifications relaxable for internal candidates.

The applications will be screened by a Committee to be appointed by the competent authority. The Screening Committee will be competent to screen applicants and classify them on the basis of quallfications and experience and call for interview only the selected candidates.

Reservation for Ex-Servicemen/SC/BC/ST candidates as per rules. However, where the candidates under reserved categories are not available, the posts will be filled up from amongst the general category's candidates.

Application forms can be had from the Manger (Printing & Publication), M.D. University, Rohtak on payment of Rs 2/- at the counter or Rs. 3/- by ordinary post. Applications complete in all respects, supported by attested copies of testimonials and crossed Indian Postal Order(s) for Rs. 10/- in favour of the Finance Officer, M.D. University, Rohtak payable at post office Rohtak be sent to the Registrar, M.D. University by **8th July, 1988**. However, no application fee from the candidates belonging to SC/ST/BC/Ex. SM is required.

REGISTRAR

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University News

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Universities and Continuing Education

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The Inevitable Tensions

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University Education in Bihar

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Agenda for Agricultural Research

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Fellowships in USA

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Environmental Education

The United States Educational Foundation in India

"Fulbright House," 12 Hailey Road,
NEW DELHI-110001

1988-89 POST-DOCTORAL TRAVEL-ONLY GRANTS

Applications are invited for a limited number of Travel-Only Grants to the U.S. from Indian scholars who have invitations to visit U. S. under the following categories, beginning **January 1989 or later.**

(A] Research or teaching assignments for a **minimum period of three months**

(B) Faculty engaged in inter-institutional collaboration, with Indian government approval, for a visit of **one to three months.**

(C) Candidates in the field of social sciences, humanities, fine arts, and performing arts with invitations from recognised institutions, colleges and universities for a professional visit of **two to three months.**

GRANTS ARE NOT AVAILABLE TO ATTEND INTERNATIONAL CONFERENCES AND SEMINARS

Candidates must :

(1) have a Ph. D. degree or equivalent published work. (This may be waived for candidates in B & C categories)

(2) be Indian citizens ynd be present in India on the closing date of competition.

(3) be proficient in English.

(4) be in good health.

(5) not have been in the U.S. during the last four years to teach, to do research or on a professional engagement.

(6) **For Category A :**

be accepted by a recognised U.S. University or research institution for post-doctoral research and/or as a visiting lecturer and must have assurance of dollar finance to cover their expenses in the U.S. for the duration of the assignment. The letter of acceptance must show the nature and duration of the assignment, and must be accompanied by evidence of dollar support at the rate of not less than $ 9,000, and not more than $ 20,000 per academic year. The evidence of dollar support could be in the form of a grant or fellowship offered by American universities or research institutions or by Indian universities or research institutions.

(7) **For Categories B & C :**

Letters of invitation or sponsorship must indicate that all local expenses will be met.

The grant will provide round-trip economy class air travel, by the most direct route, from the candidate's ordinary place of residence or his academic institution to his U.S. institution and back. Excursion fare tickets valid for 120 days will be provided for those with programs of less than four months duration in the U.S. Travel will be arranged by the Foundation, and grantees must travel on U.S. visas issued against the IAP-66 form provided by the Foundation and must conform to rules and regulations of the U.S. Government applicable to all exchange-visitor visa holders.

HOW TO APPLY

Eligible applicants must complete and forward two copies of the prescribed application through the administrative head of their institution so as to reach the Foundation no later than **October 15, 1988**, together with a copy of the letter of acceptance from the U.S. institution. The original application, along with enclosures, should be sent to the Director. U.S.E.F.I., "Fulbright House", 12 Hailey Road, New Delhi 110 001.

The second copy should be sent to the Regional Office of the U.S.E.E.I. (addresses given below) nearest to the applicant's place of residence except in the case of those resident in Rajasthan, Delhi, Haryana, Punjab, Himachal Pradesh, Jammu & Kashmir and Uttar Pradesh. Candidates residing in these States should send both the copies to New Delhi.

The Regional Officer,
U.S.E.F.I.,
"Sundeep", 4 New Marine Lines,
Bombay 400 020.

The Regional Officer,
U.S.E.F.I.,
Flat 2, Park Mansions, 57 Park Street,
Calcutta 700 016.

The Regional Officer'
U.S.E.F.I.,
American Consulate Building,
Mount Road, Madras 609 006.

Incomplete applications or applications which are not forwarded through the administrative head of the institution will not be considered.

Government officials should send a copy of their application through proper channel to Mr. S.K. Sengupta, Under Secretary (University and Higher Education), Ministry of Human Resource Development, Department, of Education, Shastri Bhavan, New Delhi 110001, as an advance copy. Consideration will, however, be given only if the application through the Government reaches the Foundation in time.

N.B. The application form will be reproduced by a photographic process. Therefore, please use typewriter with a clean, fresh **black** ribbon. If typewriter is not available, please write out your answers clearly and legibly in **black ink**, preferably in **block** letters.

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Editor :
SUTINDER SINGH

Universities and Continuing Education in Industrialising and Developing Countries

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Kamalini H. Bhansali*

Background

In this paper, it is proposed to develop the sub-topic 'Recent developments in newly industrialising and developing countries' under the main heading of 'Universities and Continuing Education'. It is necessary for such a purpose to take a model of industrialising and developing country, and it is aimed to bring about the realities of the question of Continuing Education through the model of India. Such a procedure needs indicating the constraints that arise in a situation of diverse sociological strata needing development of new strategies and techniques to fulfil our objective.

A developing country from the economic stand point is one in which there is enough potential for economic growth if the available natural resources are optimally utilised, the economic measures of such development being the rise in per capita income over a period of time.

Developing countries have generally to contend with excessive growth of population, lack of savings and a low rate of capital formation accompanied by imbalance between the different sectors of the society and India is no exception to these characteristics. Thus, even while granting the growth that we have achieved so far and a good deal of progress that we have made over three decades of planning, the basic problem of population explosion on the one hand and the chronic shortage of capital on the other still persists.

To achieve the desired developmental planning, India naturally aims to foster industrialisation through promotion of an efficient industrial structure with emphasis on cost reduction, quality improvement and upgradation of technology.

One must not lose sight of the fact that economic development by itself does not constitute total development of a society. There are other vital dimensions which need to be considered when we speak of national development. Factors such as economic, political, social, religious, ethical all go to make an integrated identity of a nation. If economic development leads to a rise in the per capita income, the level and the quality of moral and ethical values, the accepted political ideology would strengthen or weaken the social fabric and would contribute to hasten or retard national development.

Politically, India is lauded by the world as the biggest democracy. India has accepted the socialistic pattern of society and the creation of an egalitarian society where equality of opportunity to all is the watchword. Hence, the third world countries look to India for leadership.

Paper presented at the 14th Quinquennial Commonwealth Universities Congress, 1988.

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The two important tenets of a social democracy, equality and social justice pose a difficult task. To meet this need, India has the largest programme of upliftment of the conditions of the weaker sections and has emphasised the role attributed to women towards gaining equality through empowerment.

The Indian society faces a dichotomy of traditionalism and modernity. This has resulted in diversity between the different social groups towards their attitudes to life styles and towards their requirements in skill and knowledge. The Indian scenario reveals a total population of 685 millions with the literacy rate at 36%.

To meet the above challenge, the Indian economy has to achieve a balanced growth of all its sectors, and industrialisation is the prime key to it. Such industrialisation requires a high rate of capital formation.

Since savings are low in a poor country, it has to make the best of its available capital resources. It is in this sense that human resources development assumes considerable importance. Recognising the importance of this facet, a Central Ministry with the designation of Human Resource Development (HRD) is created. It is accepted that one of the primary tasks of the nation is to harness the country's human resources and improve their capabilities for development with equity. Programmes for alleviation of poverty, improving health programmes, control of demographic trends, reduction of economic and social inequalities through legislative measures and social welfare and improving productivity should be integrated with educational development as these are indicators related to the progress of the nation.

The programmes would particularly focus upon women, youth and economically weaker groups to enable them to make increasing contribution to the socio-economic development of the country.

Education can be formal or non-formal. Formal higher education is entrusted to the universities and with the emerging needs of development, there has been a tremendous expansion of the formal systems of education. In 1985-86, the higher education system had a complex of 149 universities; 5723 educational institutions; 50,000 teachers; and 35.70 lakhs students.

Recipients under the formal educational system have an ultimate objective of employment. However, mass social requirements of such an education demand increasing efforts for non-formal education. It is in this context that the vast complex of formal reservoir of human resource can be best utilised.

Extension as Third Role of University System

In the welter of words, new educational concepts suffer **Embrass de Riches** and continuing education under non-formal education is no exception to this dictum. The multi-dimensional concept of continuing education includes adult education, life long education, substitute education, second chance education, further education and so on. In spite of this wide diversity of terminology, the distinguishing feature of the different terms has a common core, namely, non-formal approach and non-formal process. For an individual, continuing education is a non-formal mode of learning that continues throughout life; for an individual it is an offering of a multifaceted life long educational service.

A sea change has come over the educational scene during the last century. Impact of demographic explosion spawned the new concept of continuing education to help society to adjust to continuous social and occupational change and introduce de-schooling as an alternative to the formal system.

It was as far back as in 1970 that the University Grants Commission initiated the programme of Continuing Education. Today, over 90 universities and 2,000 colleges in the country are involved in adult education, of which 30 universities and 50 colleges offer continuing education programmes.

The University Grants Commission in its policy frame in 1978, accepted the concept of extension as an equally important function of higher education, in addition to teaching and research; thus giving an opportunity to universities and colleges to promote increasing participation in a dynamic way. Guidelines were evolved emphasising that there should be maximum spread of knowledge and skills covering all sections of society not forgetting the underprivileged.

In order to have a comprehensive and integrated approach, various facets of education such as continuing education, adult education, population education, legal literacy, science for the people, planning forums were aggregated under one single umbrella of extension.

It is a happy sign that the University Grants Commission in less than two decades has made far reaching strides to concretise extension as the third function of universities. A review undertaken has pointed out that there have been positive gains like making the system flexible and open, reflection of relevancy in restructured courses, change in attitude towards obligation to society through a two-way process, programme expansion and emergence of Adult Education as a discipline.

The thrust areas under continuing education include:

- † Development of vocational skills and professional competence among technical, managerial, industrial and office workers, entrepreneurs and unemployed youth;
- † Remedial or bridge courses;
- † Promotion of activities for self-employment and self-reliance;
- † Need-based programmes for community development, and for particularly less privileged sections of society;
- † Training and extension packages for functionaries of various social development.

The main target groups would be women, workers including slum dwellers and migrant workers, school dropouts and unemployed youth, professionals and para-professionals, business executives and the citizens as per the demands.

Operational Approach

The operational approach for continuing education needs an analytical definition and here I would like to refer to the one given by International Commission on Development Education :

> "There are many possible definitions of **adult education**. For a large number of adults today, it is **a substitute**, for the basic education they missed. For the many individuals who received only a very incomplete education, it is the **complement** to elementary or professional education. For those who it helps to respond to new demands which their environment makes on them, it is the **prolongation** of education. It offers **further** education to those who have already received high level training. And it is a means of **individual development for everybody**. One or the other of these aspects may be more important in one country than in another, but they will have their validity".

The definition highlights the following five types of extension education : Substitute education, complementary education, prolongation or extended education, further or enrichment education and individual development for personality rounding off of every person, which are all different forms of continuing education.

Substitute Education

In the Indian context, the first function relates to making illiterate adults literate. Nearly 50% of the world's population is illiterate and one-third of that is in India. Leadership in India has accepted adult education as a national movement and the Government launched the National Adult Education Programme (NAEP) in 1978, followed by a comprehensive revised programme in 1983 comprising the Adult Education Programme (AEP) with a focus on universalisation of elementary education for those in the age group 6-14 years and the programme of eradication of illiteracy for those in the age group of 15-35 years through a centre based approach. The AEP dealt with literacy, social awareness and functional development through literacy, post-literacy, continuing education and mass programme of functional literacy (MPFL).

Prime Minister Rajiv Gandhi has identified eradication of illiteracy as one of the five missions. The Technology Mission for Eradication of Illiteracy (TMEI) is set up to mobilise social focus for raising the quality of life of the people. Continuing Education under the Literacy Mission will be achieved through Jana Shikshan Nilayam (JSN) or community centres to serve clusters of 4-5 villages with a population of 5,000, through evening classes, library services, short duration training courses, recreational and cultural activities and setting up of communication centres.

Universities and colleges as per the direction of the University Grants Commission will adopt an Area Development Approach wherein total learning needs of the area would be responded through a process of providing multiple inputs and multiple strategies including MPFL and Centre based approach. JSN will also be used as one such strategy. UGC, through the above approach, will provide universities and colleges with an integrated package of programmes including adult education, continuing education, population education, legal literacy and so on.

The contribution of Indian Universities Association of Continuing Education (IUACE) is crucial in promotional and coordinating roles through a series of workshops bringing personnel in the field on a common platform.

Second Chance Education

The problem of dropouts leading to educational wastage is an immense one, second to that of illiteracy in its intensity. Dropouts reverse to where they were before and hence in the employment market, they have the same status as that of illiterates who in addition, have missed the regular span of time-frame. Adult education, therefore, provides a second chance and has proved a useful complement to education. Time is not far when it will become an important alternative to the formal school system. The 'Open University' system is a very bold step in this direction. The Central Board of Secondary Education (CBSE) provided an alternative to the formal school for out of school learners, working adults, house wives and others through bridge courses to enable learner aspirants to later on take up secondary level courses through the Open School. Condensed courses s also another such programme of education designed for women by the Central Social Welfare Board.

The SNDT Women's University pioneered in 1974 its 'Open University Programme' providing opportunity to women, who are 21 years of age and above, irrespective of their academic qualifications, to join the University mainstream of formal education after undergoing a specially devised bridge course operated through distance education.

The Indira Gandhi National Open University (IGNOU) is the most recent experiment of open learning through distance education techniques designed to widening the access to education. Some of the other ongoing experiments in this respect are by the Mysore, Madurai Kamaraj and Andhra Pradesh Open Universities. The aim of these programmes, as in the Open University of U.K., is to provide educational opportunities for adults in their own homes and in their own time and thus enable them to further their knowledge leading to formal programmes or credit courses of a non-formal nature.

Supplementary Education

The third aspect, prolongation or extended education, was given a shape through evening classes, Adult Schools, Shramik Vidyapeeths (Institutions devoted to workers), People's Universities assisting adults in extending the education acquired by them in their youth and thus equipping them to fulfil the multifaceted acquisitions expected of them in the organised and unorganised sectors. The objective here is to consider the worker as a whole man for the different roles demanded of him. This strategy helps in widening horizons, advancing professional competence and training for new skills. Thus it provides supplementary education. This area of extension work has been successfully undertaken by universities and colleges.

Further Education

Further education or education for enrichment, the fourth factor implies deepening of knowledge and furtherance of education through inservice training courses and updating of professional knowledge and skills. With the strides that knowledge is achieving, this need is increasingly felt and professional institutes of medicine, nursing, library science, home science, management studies, education and such others are engaged in meeting these ever increasing needs of advancing technology as well as the expanding content of professional education through their Continuing Education Cells or Extension Departments. This demand is also met by professional associations, public sector organisations, banks and similar institutions through courses in further education and continuing education.

Linkages within curriculum have been established on various fronts, through involvement of students in field activity, through projects, curricular restructuring and offering training programmes for manpower development.

Women and Continuing Education

The aim of a learning society should be to make education accessible to every one through a varietyof different paths as may be necessary at any age of the aspirant. This is applicable more sharply to women as they, as a group form a disadvantaged section of society and have to face the pressures of dull or multiple roles. Women as a class constitute nearly half the total manpower resources and due to this nature of composition, they are the major sufferers of the ills of illiteracy, ill-health and social injustice. Moreover, women form a substantial segment of the labour force both in rural and urban areas. All the above characteristics and the women's movements of varying kinds that have arisen as a natural consequence of these handicaps have had an inevitable impact on the nature and practice of extension education. This is undoubtedly a pointer to the need for special action in regard to women's programmes. The role of women's universities is particularly crucial in this respect. They should provide leadership to women. They should also work for educating women in a manner that will make women conscious of seizing opportunities to acquire equality in social status. University education must enhance women's capabilities for empowerment, failing which the continuation of the inferior position assigned to women will jeopardise the future of Indian society. The New Education Policy of the Government amply substantiates this.

The SNDT Women's University in this respect, over the years, has organised programmes with different orientation under the continuing education process. The first is the academic orientation which facilitates recipients to receive the degree of the University through the bridge course of its 'Open University Programme'.

Culturally focussed programmes are specifically oriented for women to develop appreciative attitudes towards the performing arts and appreciation of the country's cultural ethos. Socially oriented courses bring about awareness of socio-psychological issues surrounding women even with respect to their legal position in their life cycle.

Self-employment oriented courses have been taken advantage of by a number of women to utilise gainfully their leisure time, thus relieving the economic stress on the family. The SNDT University thus provides the type of extension education and community action programmes through its diverse dimensions which do not consider women only at the receiving end, but also help in developing their self-confidence and self-reliance. The various departments of the University are also working as a transferring belt of knowledge by giving the role of providers to women. Further, the university has developed models through which women assume the role of change agents.

Programmes Within the System and Outside

The Indian scene presents a complex panorama of multi-faceted education activities. This covers programmes within the tertiary system which can be classified at three levels, namely, at the high professional level, at the middle level and at the grass root level. In addition, there are several agencies and organisations outside the educational system offering continuing education programmes, may be on a much larger scale. These, however, are limited to top level training of the highest quality for specialised groups through Government sponsored programmes under different Ministries, national institutes, professional bodies and associations, banks and commercial organisations, service organisations, public sector institutes, Nehru Yuvak Kendras, Institute of Workers Education, Shramik Vidyapeeths and several others.

In a modern society, to meet the fast developing needs, a stronger and closer linkage between institutions within the educational system and outside that system is needed to be built up so as to enable both to share the responsibility to create a learning society. Some of the emerging trends arising out of these efforts refer to development of education preceding economic growth, preparing men and women for a type of society to the creation of which we are looking forward, efforts in meeting contradictions arising between the products of education and needs of the modern society and most importantly, development of women. Both developed and developing countries are at grips with the transition taking place in the changed social order. Margaret Mead's words describe this situation realistically: "No one will live all his life in the world in which he was born, and no one will die in the world in which he worked during his maturity". All the scientific and technological developments must be harnessed through the agency of continuing education for the purposes of bridging this gap between the cradle and the coffin.

The Challenge

The challenge is before us. That challenge is to innovate and offer the last aspect of the definition, the individual development of the recipient without which all the previous formal or non-formal educational offerings will spell a failure. The individual development in a technological age necessarily comprises the two facets of such a development, namely, scientific attitude and value orientation. Why is it that the man who walks bouncingly on the surface of the moon walks hesitantly on his planet? This hesitancy may be due to a lack of critical aspects of this development. It is recognised that the implantation both of attitude and values cannot be achieved either by formal lecturing or by correspondence packages and set books of the Open University. It has been proved that scientific literacy and analysis of values can be cognitively offered. However. such offering needs to be sublimated into an attitude which crystalises in action. This can only be achieved through different strategies where a teacher possessing such supreme characteristics meets his students in workshops, in symposia, creating case histories and thus projecting components of a developed personality.

Aldous Huxley gives three dimensions of an educated person. The first 'Verbal', the second 'Symbolic' and the third 'Non-verbal'. The first two can be achieved by continuing education. What is 'Non-Verbal' education ? Wordsworth gives meaning of 'Non-Verbal' education as :

> "Enough of Science and Arts
> Close up these barren leaves
> Come forth and bring with you a heart
> That watches and receives".

Developed and developing countries have this challenge to meet by structuring strategies for the 'Non-Verbal' education by unique value creating pedagogy. ☐

THE INEVITABLE TENSIONS

J.N. Kapur*

The research workers work under an inevitable tension. The tension is between Pure Research and Applied Research, between Basic Research and Applications-oriented Research, between Academically-Respectable Research and Applicability-Respectable Research, between Curiosity-Driven Research and Market-Driven Research, between Abstract Research and Socially-Relevant Research and so on.

Every research worker is torn between two loyalties, loyalty to academic values and loyalty to society. On the one side, there is beauty, elegance, abstraction, generalisation and depth and on the other side, we have messy situations, short-term solutions and immediate applications. On one side, there are immediate academic rewards and possibilities of practical results in the long run; on the other side there are immediate economic gains and possibilities of basic research in the long run.

All research has its roots ultimately in the physical, economic and social needs of society. After immediate problems are solved, the gains of research are studied at leisure, are systematised, patterns in it are discovered, laws are formulated and academic research follows. This academic research may lead to new unexpected applications and from these unexpected applications, new lines of basic research may start. After this process of alternative applications-oriented and academic research is repeated a number of times, the academic research may be so far removed from real applications, that the possibilities of its applications may become insignificant. However the research problems may become so intellectually fascinating, challenging and absorbing to the research workers that they may henceforth do research for the sake of research only.

At this stage, some persons begin to question the relevance of this research. Some research workers meet the criticism by arguing for the dignity of the human mind, for its intrinsic right to meet intellectual challenges, by the need for intellectual food of the highest kind for mankind, while other research workers justify their efforts by the possibility of distant but possibly remarkable applications of this in-depth research. There are both aggressive and defensive attitudes, but there is unmistakable evidence of tension in the system.

Left to themselves, most research workers tend to gravitate towards academic research because of its intrinsic attraction, academic rewards, publishability and breadth of outlook, though there are some who still feel interested in practical problems. Society and governments therefore, apply economic pressures to push the research workers towards the practical problems. These pressures are applied by giving much larger funds to research laboratories dedicated to solution of practical problems and much less to academic institutes, by giving research grants to those research schemes which claim to be able to give practical results and withholding these from others.

However since the distribution of funds has to be made through academicians, academic research still receives some funds. Nevertheless in this process, some ethical values may be sacrificed. Academicians claim that their research schemes are oriented towards applications in the fields considered important by the fund-giving agencies, while in their hearts they know that the main research will be theoretical and the fall-out for applications will be only marginal. This again leads to tension in the minds of those who submit schemes and those who evaluate them.

Some research workers have a knack of getting on the bandwagon. Whatever be their expertise, they relate it to the fields considered important by the fund-giving agencies and use their influence to get big grants. On the other hand, there are research workers with 'conscience' who do not want to make false claims and who suffer in the process. Thus inevitable tension is there in both cases.

The funding agencies also know that the results claimed will not be obtained, but they are happy that in this way they can apply a gentle pressure which forces the research workers to be more practical. They also know that a stronger pressure may be counter-productive.

In developing countries, this inevitable tension is very pronounced. The political groups always plead for wholly practical and relevant research. They claim that their countries are too poor to afford the luxury

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of fundamental and curiosity-driven research. However research grants administrators know that one cannot have application-oriented research without basic research, so they play a tight-rope game of pleasing both the political and the academic groups. They try to moderate the attitudes of both the politicians and the academicians. They try to work out compromises both in letter and spirit.

In science and technology research work starts from both ends and may converge somewhere in the middle. The practical problems of industry and technology require immediate solutions. As such scientists and technologists in industry survey the whole field of relevant science and technology and see if solutions to these or similar problems are already available and then try to adapt these solutions to problems at hand. They sometimes find gaps in knowledge which have to be filled in by fundamental research under great pressure. Once the fundamental research helps in solving the immediate problem, the interest of scientists may decline, since in the meantime they may have got other industrial problems to solve. However some of them and some academic scientists may go deeper into fundamental research and work on these for possible future benefits or for the sake of satisfying their own innate curiosity.

On the other hand, research may start for purely intellectual reasons, with no immediate possibility of applications. Over a time more and more practical applications may be discovered so much so that at later stages, all research in a field may be supported by industry alone.

In social sciences also, research may start at both ends. Some researchers study the existing practices, rationalise these, try to understand the reasons for their having been adopted; find regularity and patterns and discover laws of social behaviour in this way. On the other hand, there are others who formulate plausible axioms, deduce logical conclusions, compare these with what is actually observed and thus arrive at laws of social behaviour.

There is nevertheless tension between those who believe in going from data to the laws and those who want to go from laws to the data. However both approaches are essential for the progress of research.

The tension is inevitable everywhere, but it becomes very pronounced in disciplines which are highly mathematical. In mathematics itself there are pure or abstract mathematicians who postulate consistent axiom systems and then deduce beautiful results from them. These axioms may be about abstract systems which may have apparently nothing to do with real-life systems. Painstaking research may however be able to demonstrate that these abstract systems are related to real-life systems through a dozen or more successions of generalisations and abstractions. There are others who work on systems which are only four or five generations of abstractions away from physical reality and there are still others who are ready to work at the first level of abstraction.

Thus we may, at any time, have a dozen groups working at a dozen levels of abstraction. The tensions arise when those who work at the deepest level of abstraction i.e. at farthest distances from physical reality consider themselves as the only true Brahamins. Those who work on applications sometimes want to get respectability by using the sophisticated language of abstraction even when it is not needed. In applications, it should be the insight one gets rather than the language one uses, which should matter.

In other subjects, the number of levels of abstraction is smaller and accordingly the tensions may be consequently less, but the tensions are nevertheless there.

Thus in operations research we have theoreticians and practitioners. The theoreticians are found mostly in universities and enjoy a high status. The practitioners are found in industry and enjoy a relatively lower status because in industry workers are not expected to make decisions, but can only help those who make decisions. In economics, some economists get a high status because of their work in mathematical economics but they later migrate to positions where they deal with large scale real economic problems, with their status intact. With the advent of computers, theoretical engineers have risen in status relative to field engineers.

In every field, there is a tension between theoreticians and practitioners. Sometimes the scales are tilted against the theoreticians because a majority of workers in the field are weak in theory and they consider all which they do not know as unimportant. They may use only low level theory and may consider sophisticated theory as a luxury which can be dispensed with.

To be theoretically sound, one has to work hard continuously and remain uptodate. To be practically sound, one needs experience and commonsense.

(Continued on page 10)

UNIVERSITY EDUCATION IN BIHAR

A. K. Ghosh*

Recently one Mrs. Chinta Devi, Lecturer of Kanti Indira Mahila Mahavidyalaya, Patna, poisoned herself to dehth along with her two children for want of money to maintain her family. Many Chinta Devis of various Colleges in Bihar are on the verge of getting on the same boat. The catastrophe is the by-product of the new concept propounded by the State Government under which anybody is allowed to open a college without any financial assistance from the Government.

Selling Education

The race for setting up new colleges in Bihar by some private agencies has escalated their number to as many as 187 named as "bittiye bhar rahit" colleges (Colleges without financial aid). Some of them give a token salary to their teachers but majority of them do not pay anything. These colleges have been opened with donations from those desirous of a teaching job. The amount ranges from Rs. 10,000 to Rs. 20,000. Such teachers have to pay the donation at the time of creation of posts for them, at the time of appointment, at the time of Government announcement to convert the institution into constituent unit and also at the time of their actual take over by the Government. These colleges have been flourishing keeping the teachers in fools' paradise.

Starting a new college is supposed to be the best business these days. This industry is much more flourishing than any other industry. The exodus to towns and cities have intensified the need for more educational institutions than are available and unscrupulous people are taking advantage of this situation. They start a college in some hired house and then advertise in papers for teaching and non-teaching staff. After receipt of a large number of applications from educated unemployed persons, the bargaining starts. Even before the appointment letters are issued to the applicants for the job of lecturers, they are asked to work for some months and years on honorary basis, i.e., without any payment and after some time they are paid a very petty amount or Rs. 150 to Rs. 200 per month but they are required to sign on payment registers indicating full payment of a lecturer.

In such colleges, generally undeserving Principals are employed so that they can toe the line of the person who has established the institution. Through them are got done all sorts of wrong things for the benefit of the institution owner. Teachers and heads have to work at the mercy of the founder of these institutions and, hence, generally unprincipled persons are able to retain their service and undergo exploitation and principled persons are thrown out in course of time if at all they happen to enter such an institution.

The founder of the institution in the meantime manipulates the people at the helm of affairs in the University/Government to obtain grant/subsidy for the institution and generally he is successful in doing so. After the grant/subsidy of Government/University is obtained the founder gets the real benefit because only a part of it is actually utilised and a substantial portion of the fund goes to the benefit of the founder although on paper the entire amount is shown used for the purpose it was intended. Such institutions in course of time due to political and other pressures are taken over by the Government and then only the services of all the lecturers are regularised and they start enjoying the fruit of their donation for the whole life without at the same time contributing anything to the cause of higher education. During the eightees nearly 150 private colleges have been taken over by the Government/University in the State of Bihar only.

This is the only route left now to enter the university service in Bihar. The old practice of recruiting lecturers through the Public Service Commission or University Service Commission has been rendered obsolete for the last several years closing thereby the door for the brilliant people to enter the profession. Yet the provision of inter and intra university transfer of teachers is there to push these politically sound and economically rich but academically poor teachers to get their services transferred from their native moffusil constituent colleges to some premier institutions of the same or different university. The fate of the universities with such a weak backbone can be well imagined.

Also, during the last few years about a dozen of engineering colleges have been started in the private sector in the State despite the fact that thousands of engineering graduates are rotting and sitting idle for want of employment. These institutions have charged fifteen to thirty thousand rupees from each candidate as capitation fee (another name of donation) without ascertaining the merit of the candidates. To think of

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the quality of the technocrats coming out of such institutions ! The students who have paid such a big amount cannot think of remaining honest after they get any employment on completion of their academic career. Thus the quality and integrity of the majority of the product of such institutions is bound to be affected and naturally their worth is questionable.

Ph.D.—A Mania or a Must

The mechanical criterion for the time bound promotion of a lecturer to the post of Reader has made the Ph.D. degree too cheap as this degree guarantees quick promotional avenues. Prior to such time bound promotional scheme teachers used to do research work for their academic interest. But of late they have no option but write Ph.D. thesis only to secure promotion. The rate of Ph.D. production is touching sky high and it would not be unfair to say that in the name of research leading to Ph.D. degree there is loss of teaching and wastage of money without any improvement in the quality of teaching. Some teachers even manage to go on leave with full pay plus extra amount as teacher fellowship for two or more years and in return their contribution to the cause of higher education is nothing. In the easiest examination called the Ph.D., nobody fails. This is an art of manipulation and to get this degree awarded what one has to do is to please the supervisor and the concerned University head as it is they who in connivance with each other manage the appointment of some pet examiners who are more concerned with their own T.A. and remuneration than the quality of the thesis, just recommend the candidate for the award of Ph.D. degree.

True, there are some dedicated and efficient teachers who cannot let themselves allow to hire so called pseudo Ph.D. degrees and hence they are virtually the worst sufferers. Their efficiency declines when they find to their dismay that they are superceded by their junior colleagues holding such Ph.D. degrees.

Unfair Examination

Now coming to the question of maintenance of arts, science and commerce Colleges in the private sector. There is invariably shortage of funds since their inception due to many reasons including misuse. There is lack of adequate and efficient teachers and proper arrangements for practical training by way of laboratories/workshops. As a matter of fact, the students who have not been properly taught are compelled to resort to unfair means to pass the examination. On the other hand the teachers while working in an ill-equipped college naturally have inclination to improve the result of their institution by not preventing their students from doing so. This is the main cause of the present day malady of use of unfair means in the examination.

In large number of cases, private Institutions are started not only with the intention of earning but with the aim of serving the cause of caste or community. The very inception of such institutions is based on caste or community feeling to perpetuate and promote casteism and communalism.

What to speak of the private calleges, practical classes do not receive proper attention in constituent colleges too. Due to financial burden, the universities are not able to meet the contingency expenses of the laboratories. The financial grant which the universities receive from the state Government is meagre in comparison to their actual requirement. Much of the amount is spent as T.A. or C.A. of the observers, flying squads and centralised evaluation of answer books. There are now no demonstrators to manage the laboratories as they have been promoted as lecturers after completing M.Sc.

This serves as another reason for the neglect of practical classes. The directives of the UGC allowed the appointment of Lab. Assistants for management of laboratories but lack of funds restrains the universities from doing so. Most of the promotee lecturers who have just managed to pass the M.Sc. examination with high marks in the practical papers, of course, are seen cutting a sorry figure in the class. In spite of all this the students who hardly work in the practical classes come out with flying colours in the examination.

Evaluation of Papers—a Farce

A report in the Hindustan Times Daily, Patna, Dated 7.12.87 reads : "The centralised evaluation of answer books of Magadh University has turned into a big farce with proliferation of corruption and nepotism. The sanctity of centralised evaluation has reached its lowest ebb as no examiner makes an effort to go through the entire answer books and marks are awarded virtually blindly... pulling strings and canvassing is the only way left to secure high marks...".

Experiments with Education in Retrospect

Ironically, over the last decade a number of steps have been taken for the upliftment of the economic and social status of the teachers but measures to promote the basic needs of the colleges have always been ignored. Needless to say, experiments after experiments have been carried out to enhance the academic standards in the State but without any tangible result. Actually most of the ills that afflict the universities today owe their genesis to the wrong decisions of the Government taken generally with a vested interest. The resolution of "passing without English" framed by the coalition Government in 1967 was clearly reflective of Govt.'s weakness for the students who had helped them in realising power as a result of which the examination and degrees lost their value. Credit goes to the succeeding Government led by late Kedar Pandey who took some right steps to curb the malpractices prevalent in the universities by appointing members of the IAS with powers of both the senate and the syndicate vested in them for keeping the universities away from political interference. But this period could not continue for long, In the name of autonomy of the university the old system was revived. Dr. Jagnnath Mishra's ministry, in a bid to have a full grip over the universities, took certain decisions that told upon the entire atmosphere of higher education. The net result is very much before us.

Remedies

It is imperative that the Government must put a complete ban on opening of educational institutions by the individuals. The Government at the same time should make arrangements for setting up new colleges according to the needs of the area. The colleges already started and being run by individuals should not be given recognition or encouragement by the Government. The Government should also be cautious in offering higher posts such as those of Vice-Chancellor, Registrar, etc. to the teaching staff of such private institutions taken over by the Government in the recent past so as to check the inferior quality of education administration.

Teaching in the universities cannot improve unless the sincere and devoted teachers are rewarded and promotional avenues are created for them. The appointment of teachers should be made on the basis of written and oral tests. Ph.D. examinations should be made strict so that pseudo Ph.D. degree is not encouraged. Research publications in standard research journals should be given due weightage. Minor research projects should be awarded to the deserving teachers and funds for such projects should be raised and adequate facilities provided. Adequate laboratory grants should be released for the improvement of science faculty.

No class should be made to suffer on account of examinations which take a considerable period of the teaching session. Private tutorial classes should be revived. The university should maintain progress report of the colleges regarding teaching. Postgraduate teaching should be planned and managed reasonably. Unwanted and indiscriminate growth of Postgraduate teaching centres should be curbed. It is high time proper measures are adopted and all out efforts made for the uplift of poor colleges already upgraded to constituent status to maintain standards of the university education in the State. □

THE INEVITABLE TENSIONS

(Continued from page 7)

A similar tension arises in the field of education. We have tension between Education for the Classes and Education for the Masses, Academic Education and Vocational Education, Liberal Education and Technical Education, Education for the Mind and Education for the Hand and so on. There is a constant pressure that education should be relevant to the needs of students, teachers and society. On the other hand there is also the school that believes that education is for training the mind, since a trained mind can learn any discipline it wants. Too much emphasis on relevance in education can make it irrelevant later.

The tensions in the academic community are often fed by vested intersts of individuals. We need both theoreticians and practitioners, we need both basic and applied research, we need abstract thinkers and down-to-earth problem solvers. Everyone has a role to play and different persons have different roles to play. There should be no caste distinctions on the basis of the positions individuals occupy in the spectrum between extreme concentration on theory and extreme concentration on practice.

There should be mutual appreciation instead of tension. While playing our roles, we should develop appreciation for the roles played by others. This will help all.

The tensions in research and education are similar to the conflicts between different religions. Just as different religions have the same goal of divinity of man, different groups placing different emphasis on different aspects of Education and Research have the same goal of Search for Truth has many aspects and different researchers explore different aspects. Co-operation between them is essential for a grand vision of the Whole Truth. □

Agenda for Agricultural Research

Dr. Raja J. Chelliah, Member, Planning Commission lauded agricultural research to bridge the gap between the proven potential and the actual yields on the farm through adaptive research to suit varying agro-climatic and socio-economic conditions. Dr. Chelliah was delivering the Convocation Address at the 22nd convocation of the University of Agricultural Sciences, Bangalore. He discussed the priorities in agricultural research and observed that "research for biological fixation of nitrogen and to increase the fertiliser use efficiency and evolving varieties incorporating multiple resistance against pests and diseases and adverse environmental conditions must be high on the agenda. Other priority areas in agricultural research, I may mention, are : (i) evolving suitable dryland technology for rainfed areas, (ii) varietal breakthrough in pulses and oilseeds, (iii) conservation and planned exploitation of germ plasm resources of plants, animals and fisheries to broaden the genetic base for improvements, (iv) strengthening of activities in respect of biotechnology; and (v) greater research support to agro-meteorology." Excerpts.

Convocation

Although the contribution of agriculture to the gross domestic product has declined from about 59 per cent in the early fifties to about one third in recent years, it remains the crucial sector in our economy in the overall perspective of development. Agriculture gives employment and hence livelihood-to the major proportion of the labour force and supplies the most important and basic requirement of the population, namely food. Hence agriculture will continue to dominate the perspective of the development of the Indian economy from the view point of food security as well as in terms of that sector's unique association with the problems of employment, income generation and poverty alleviation.

Since agriculture is the supplier of food and raw materials for industry and since at the same time the agricultural population constitutes the most important segment of the market for industrial products, it is clear that the overall rate of growth of the economy is limited by the growth of agriculture. To some extent the growth of exports can substitute for the growth of agriculture in terms of making possible a higher rate of growth of the economy. That is one good reason, among others, for pursuing policies for promoting exports. But since there are constraints on the growth of exports, in the present conditions of the world economy, we cannot pursue the goal of a higher growth rate only or mainly through raising the ratio of exports to GDP. Agriculture will continue to be a constraining factor, at least in the medium or long-term perspective.

Thus, while the building up of a modern, progressive industrial structure must be one of the main goals of planning in India, equal attention has to be paid to the growth of the agricultural economy and to raising its levels of efficiency andproductivity from the angles of (a) food security (b) employment and poverty alleviation; and (c) making possible attainment of a higher growth rate for the economy as a whole.

"Food security" has been defined as "access by all people at all times to enough food for an active and healthy life". Access to enough good for all people depends on two conditions: (a) sufficiency of supply/production of food in relation to the growing population, and (b) a certain pattern of income distribution to enable all the people to command enough purchasing power to have access to food necessary for an active and healthy life.

At the beginning of this century (in 1901) the Indian population (i.e. population of the present Indian territory) was 238 million and it increased at a slow rate till 1951. The reasons for slow growth were the frequently occurring famines and epidemics. By 1951 the population had increased to a level of 361 million. The average annual growth rate for the half century (1909—1951) works out to 0.83 per cent. The impact of economic development on the growth rate of population was not fully perceived at the beginning of the era of planned development. At the time of the formulation of the First Plan, it was assumed that the population would continue to grow at the annual growth rate of 1.25 per cent which was the growth observed in the forties.

But in actual experience, there was a sharp reduction in death rates leading to higher expectancy of life on the one hand, and higher and progressively increasing rate of growth of population on the other. The life expectancy increased from 32.1 years in 1950-51 to 54.4 years in 1980-81 and is estimated to have gone up to 56.5 years by 1984-85. The realised growth rate of population over the period 1951 to 1985 has been about 2.03 per cent per annum. The latter decades have shown even a higher growth rate, going up to 2.25 per cent during 1971-81. This was in spite of the fact that during 1951-1971, there was an almost constant fertility rate, and during the decade 1971-81, there was a decline both in fertility and in mortality. However, as yet there are no certain indications of decline in the growth rate of population, if the present trends continue the population may well cross the one billion mark by the turn of the century. This population by the turn of the century will also consist of a higher proportion of persons beyond 15 years of age (about 68 per cent by the year 2000 as against about 60 per cent in 1980) and hence would also consist of larger proportion of labour force.

The production of foodgrains is taken to be a convenient indicator of the food perspective mainly because statistics on production of foodgrains are more easily available than on the other items of food, and foodgrains constitute the bulk of food consumption, specially in a country like India. However, it would be useful to consider at the outset as to how large is the bulk of foodgrains in the total food consumption. As per the 32nd and the 38th rounds of the National Sample Survey, expenditure on foodgrains in rural areas constituted 58.1 per cent of total expenditure on food in 1977-78, and thir proportion declined to 55.3 per cent in 1983-84 for the entire rural population. However, for the poulation group just around the poverty line in rural areas, this proportion was about 63.5 per cent for both the rounds. For urban areas expenditure on foodgrains constituted 40.6 per cent of total food in 1977-78 and 38.8 per cent of total food in 1983-84. There is a clear evidence of diversification the food basket and of increasing share of meat, fish, egg, vegetables and fruits. The share of this group of food items in the total expenditure on food increased from 11.7 per cent in 1977-78 to 13.9 per cent in 1983-84 for the population in rural areas. Even for the population group around the poverty line in rural areas, there is a perceptible increase in the share of this group of food items from 11.3 per cent in 1977-78 to 12.3 per cent in 1983-84. In urban areas the expenditure on these items increased from 16.4 per cent of food items to 18.1 per cent over the same period. This has to be taken note of while considering the per capita availability or production of foodgrains in relation to the food problem. Also, the observed pattern of consumption of the different expenditure groups indicates the composition of the increase in food output that is to be brought about.

In 1950-51, the foodgrain output was about 51 million tonnes which reached 70 million tonnes in 1954, and since then the output has shown an increasing trend barring the fluctuation caused by weather conditions. A peak of 152 million tonnes was reached in 1984. Due to accelerated rate of growth of population particularly during the decade 1971-81 production of foodgrains in per capita terms has not shown a significantly increasing trend. However, during this period there has been a growth in the production of fruits, vegetables, fish and the products of animal hurbandry, which is also reflected in the diversification of the food basket.

The main Indian achievement on the food front, so far, can be described as (i) elimination of the need for food imports, (ii) maintenance of adequate stocks to stabilise prices and immunise production against the cob-web cycles, and (iii) achieving a pace of growth in food production which is more or less consistent with the growth of the rest of the economy. However, since about 37 per cent of the population (i.e., population below poverty line) is still undernourished, the total absolute requirements of food to feed the entire population at a level above the minimum nutritional requirements are still quite large. A calculation, taking into account the population growth and its changing age-structure, projected increase in per capita income and the expenditure elasticities for foodgrains, and keeping the target of feeding at least 95 per cent of people at a level above the minimum nutritional requirements, projects the foodgrains requirements at over 240 million tonnes for the year 2000.

Land, water and environment constitute the basic resources for agriculture. Out of the total geographical area of 329 million hectares in India, the cultivable area is estimated at about 186 million hectares, while the net sown area is 143 million hectares. The difference between the net sown area and the cultivable area consists of marginal lands. However, the net sown area which was 119 million hectares in 1950-51 increased by about 12 per cent during the decade 1950-51 to 1960-61 and by about another six per cent during the next decade (1960-61 to 1970-71), and thereafter it has remained more or less constant, fluctuating marginally around 141 million hectares. There is little scope of increasing it further. In fact, the growing need for housing, expanding industrialisation and spread of infrastructure may further encroach upon some of the cultivated lands. And since most of the activities and habitation get concentrated upon lands where water is available, the encroachment for such purposes upon better agricultural lands is more than upon the waste lands. However, a significant source of augmentation of cultivated land has been irrigation. Net irrigated area expanded from about 21 million hectares in 1950-51 to about 40 million hectares in 1982-83 and gross irrigated area increased from about 23 million hectares to over 52 million hectares over the same period. As a result, the gross cropped area increased from 132 million hectares in 1950-51 to 173 million hectares in 1982-83 and 175 million hectares in 1984-85. The cropping intensity has gone up from 111 in 1950-51 to 122 in 1984-85.

Water is thus the key resource for its direct contribution to productivity and for its contribution to multiple cropping, thereby augmenting the given land resource. The spread of irrigation has also helped in stabilising agriculture against the vagaries of the monsoon. The created irrigation potential was about 68 million hectares in 1984-85, which, at the end of the Seventh Plan, is targetted to reach about 81 million hectares. On the basis of existing technology and costs of water diversion, the ultimate irrigation potential is estimated, somewhat conservatively, to be 113.5 million hectares. However, the technology improves over time and relative costs and benefits change in the perspective of changing relative scarcities and more optimal uses of scarce resources. In such a perspective, a higher estimate of the ultimate irrigation potential which takes into account the possibilities of inter-basin transfers of water, is about 148 million hectares. Even if this potential were to be realised, a significant proportion of land would remain without irrigation. And yet this scarce resource, water, is being used much below the optimal or feasible efficiency levels. There is a yawning gap between creation of potential and its utilisation. Moreover, in most of the irrigation systems the overall average water use efficiency in terms of water used by the plants in relation to water released at the head of the system, ranges between 25 per cent and 30 per cent at present. There is a potential of raising this efficiency to bring it in the range of 50 to 60 per cent, which would amount to doubling the availability of usable water even within the existing systems. This can be achieved partly through additional investments in lining, control systems and local storages, and partly through improved operation of the system and better irrigation and land management practices.

The Command Area Development Programme was initiated in the Fifth Plan with a view to optimising agricultural production through better management of land and water use in the command areas of irrigation projects. The objectives are sought to be achieved through modernisation and efficient operation of irrigation systems, provision of adequate drainage, construction and lining of field channels, levelling and land shaping, conjunctive use of surface and ground water and reinforcement of extension services and supply of inputs to the farmers. Much remains to be done in fulfilling the objectives of the Programme.

Many State Governments have not paid sufficient attention, and at sufficiently high levels, to the question of water management and to the task of getting the maximum out of the irrigation potential already created. There are on the one hand financial lapses or shall we call it, inefficiency (cost overrun, leakages and kickbacks, inadequate recoveries from beneficiaries, etc.). Apart from that, we encounter in several States, technical inefficiency in terms of non-utilisation of high portion of potential, wastage of water, water logging, etc. Irrigation and water management must be placed in the hands of the best officers the State has and must receive the close and personal attention of the Chief Minister in addition of course to the supervision of the Minister concerned.

The importance of environment being a resource is being increasingly realised though still we cannot subject it to the type of measurement which is possible in the case of land or water. While macro-climatic impact of environment cannot be perceived even over a period of a few centuries, some of the consequences are easily seen and can be correlated to environmental degradation. For example, based on the record and analysis of flows in the Narmada for about 80 years, it is reported that the intensity of floods in the river significantly increased since the forties, and some of the biggest floods have been experienced in the later period. Heavy deforestation of the Narmada basins started during Second World War period, and since then the density of forests has been decreasing. This affects water retention capacity of the soil and run-off to the river increases. This run-off also erodes the soil. A similar situation is said to exist in several other basins as well. There are other types of environmental erosion, the consequences of which are seen in much shorter periods. Examples are the problems of water logging and soil salinity caused by overuse of irrigation water in soils which are not easily drainable. Tawi basin in Madhya Pradesh is an outstanding example of this, but the problem is more widespread than is realised particularly in the paddy and sugarcane areas in peninsular India and parts of Haryana and Punjab as well. Widespread irrigation also raises the level of humidity in the atmosphere and increases the incidence of pests and diseases on the crops. It is not that there are no preventive and corrective measures to these problems, but in the first flush of development these problems get ignored till the corrective measures become more difficult. Short term private gains also override the consideration of long term social costs, and hence the need to guide private actions in the perspective of long term social objectives.

Technology plays a vital role in "augmenting" the given national resources. Even the perception of given resources depends largely on the state of technology. The assessment of water potential, for example, will go up. If economically feasible technology is available to connect the northern river systems with the peninsular systems. But, as is well known, even more important in recent years, has been the role of technology in increasing yields through the introduction of new varieties particularly in the case of food production. The evolution of high yielding variety of wheat, adaptable to Indian agricultural environment marked the onset of the green revolution. Since then improved varieties have been evolved in respect of many other crops, and remarkable increases in yields have been observed. The all-India average yield of wheat has increased more than 2.8 times over the period 1950-51 to 1983-84 and that of rice more than twice over the same period. The yield of all foodgrains taken together also increased more than twice. These are only all-India averages which are still heavily weighted in favour of traditional agriculture. The green revolution has adequately covered only the north-western region and some pockets in other parts of the country. It has been estimated that such developed areas accounting for less than 15 per cent of the area under foodgrains contributed as much as 56 per cent of the increase in food production in the post-green revolution period. The area under high yielding was only 56 million hactares in 1984-85. Thus, the full potential of the new technology is far from being realised.

Yields have been observed, under field conditions, to reach as much as 4½ to 5 tonnes for rice and wheat on an average for a few pockets. The adoption of new technology depends very much on assured and timely water supply and a package of other inputs the most significant of which is fertiliser. Fertiliser application increased from about half a kg per hectare in 1950-51 to more than 46 kg/hectare in 1984-85 on an all-India average basis. Of considerable promise in the field of agricultural research is the effort to bridge the gap between the proven potential and the actual yields on the farm through adaptive research to suit the varying agro-climatic and socio-economic conditions. Research for biological fixation of nitrogen and to increase the fertiliser use efficiency and evolving varieties incorporating multiple resistance against pests and diseases and adverse environmental conditions must be high on the agenda. Other priority areas in agricultural research, I may mention, are: (i) evolving suitable dryland technology for rainfed areas, (ii) varietal breakthrough in pulses and oilseeds, (iii) conservation and planned exploitation of germplasm resources of plants, animals and fisheries to broaden the genetic base for improvements, (iv) strengthening of activities in respect of biotechnology, and (v) greater research support to agro-meteorology.

The importance of organising basic research programmes in the field of bio-technology as applied to agriculture and allied sectors needs hardly be emphasised in view of the need for breaking yield barriers in the major food crops, reducing dependence on non-renewable sources of energy and developing resistance to pests and diseases. This field of research has received considerable impetus with the establishment of the National Bio-technology Board and the development of short-term and long-term programmes of research. This field has immeasurable potential.

Yet any other aspect of resource management and policies not only as a means of raising the productivity of land but also as a principal determinant of class relations and social justice has been the emphasis on land reforms from the very beginning. The main components of land reform policy have been (i) abolition of intermediary tenures, (ii) tenancy reforms comprising regulation of rent, security of tenure aad conferment of ownership rights on tenants, (iii) ceiling on land holdings and distribution of surplus land, (iv) consolidation of holdings, and (v) compilation and updating of land records. The abolition in the 1950's of intermediary tenures like zamindars, jagirdars, inams, etc., which prevailed in nearly 40 per cent of the area of the country was a major achievement. Consolidation of holdings has been successfully completed in some of the States, and the consolidated area at the end of the Sixth Plan was about 52 million hectares, i.e., about 1/3rd of the net cropped area. In irrigated commands, consolidation of holdings facilitates efficient and economical layout of field channels and thus improves the efficiency of water use. In other areas consolidation encourages private investment in land. In Eastern U.P. particularly, it was after consolidation that fermers made investments in private tube-wells on a large scale and this became the triggering point of a chain of developments which have been noted in the last 6-7 years.

Agricultural price policy in conjunction with technological development has played an important role in India in raising production and stabilising prices. It has aided the adoption of high yielding varieties and enabled the farmers to go in for increased use of fertilisers. Price policy decisions are currently announced in respect of nineteen commodities, ten of which are commercial crops and the rest are food crops. Paddy, selected coarse cereals and wheat are covered under procurement prices and other crops are covered under the minimum support prices. Regular prices policy announcements have been initiated only after mid-seventies. In announcing these prices the Commission on Agricultural Costs and Prices has been taking into account not only a comprehensive review of the production and price trends of the particular crop but also a number of other important and related factors. In future, the agricultural price policy needs to be increasingly concerned with the maintenance of a scale of appropriate relative prices of crops so that the supplies of different commodities are brought in line with the respective demands. Even more challenging is the task to bring about a cropping pattern which is optimal from the point of view of a longer perspective on scarce resources like water and environment. Returns to water in crops like paddy and sugarcane are relatively much lower and their long term impact on soil salinity and water logging is highly adverse particularly in heavy soil areas. One has to think in terms of alternative crops and economic options to produce or buy. This of course is not a task to be handled by prices alone, but technological development also has to play a crucial role.

The green revolution and massive investment in irrigation and other infrastructure has raised land productivity significantly but labour productivity has not grown at an appreciable rate. In order to keep tolerable parity in incomes between those engaged in agriculture and those working in the non-agricultural sectors, heavy doses of subsidies are given to the agricultural sector in the form of subsidised input and irrigation. Also the price support system for major crops has been evolved to achieve this objective as well to minimise the cob-web type of fluctuations in agricultural production. This imposes severe strain on the public exchequer. In the future, labour productivity in agriculture must be increased so as to keep subsidies within reasonable limits.

However, with the increasing pressure of population on land, the average size of the operational holding is diminishing. This fact and the non-withdrawal of labour from agriculture in relative terms (i.e. reduction in terms of percentage of total labour force) serve to hinder the adoption of more efficient techniques and to reduce the relative level of per capita income in the agricultural sector. Obviously, for the fast growth of agriculture and the alleviation of poverty in rural areas, the secondary and tertiary sectors must absorb an increasing proportion of the labour force. Hence the accent on industrialisation and the growth in small industry. In the years to come, if we have a choice, we must aim to produce and export goods of light industries and obtain products of more capital intensive (non-strategic) industries from abroad. Also, we can see that the fast growth of industry is essential for the development of agriculture and the improvement in the living standards of the population.

At this point, I would like to digress a bit to say that those who have benefited from the substantial and expensive programmes of agricultural and irrigation development, price support policies and rural electrification, particularly the better off sections of the agricultural population, must be willing to contribute their bit to finance further development. It is idle to imagine that development can be had as a free good. Industry cannot be milked beyond a point for subsiding agriculture. And

Government has to meet many essential demands on its resources. Agricultural growth will require increasing amounts of ploughback of the profits of agriculture itself.

I may summarise what I have dwelt upon at some length. In the context of the development perspective of the nation agricultural production in general and production of food in particular need to be enhanced continuously in spite of severe constraints on land and water resources. Land productivity has been increasing, thanks to new bio-chemical technology, but at the same time the cost in terms of energy, water and chemicals has also been increasing. It may not be enough to take care of the productivity of land. Returns per worker engaged in agriculture too have to increase to compare with returns in the non-agricultural sectors, otherwise agriculture will have to be perpetually subsidised impairing the potentials of investment in agriculture and other sectors of the economy.

Although there are many serious problems, we take an optimistic view of the future. In the early sixties when most of the Agricultural Universities were set up in the country, our situation was much worse and resources, even for research and development, much poorer than what we have today. These institutions have justified their existence by bringing about a break-through in agricultural technology. Many of our research institutions have already taken up the frontier areas, particularly bio-technology in the context of agriculture of the future. There is much more consciousness about preservation of environment, conservation of soil and efficient management of water resources. I hope that the Agricultural Universities will take up work on agro-institutions and agri-industries as important disciplines in addition to agro-economics which they already have. □

MINISTRY OF DEFENCE

Defence Research & Development Organisation (DRDO)

CORRIGENDUM

Reference DAVP Advt. No. 88/144 inviting applications for various fellowship courses in DRDO appeared in these columns on 13-6-1988.

For	Vacancy	
"2. Integrated Mechanical Engg. Fellowship Course	30	UR—23 SC—05 ST--02,,
Read		
"2. Integrated Mechanical Engg. Fellowship Course	10	UR—08 SC—01 ST—01"

2. Under admissions criteria and eligibility conditions, following amendments are made in respect of :

Integrated Mechanical Engg. Fellowship Course :

For

"After initial training phase fellows would be specialising in Gas Turbine/Armament/Automobile/Structures/Robotics, etc. 10 Fellowships are earmarked for Gas Turbine Technology and 20 for other specialisations".

Read

"After initial training phase, fellows would be specialising in Gas Turbine Technology."

3. Other terms and conditions remain same.

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Dr. Richard Holmes Visits IGNOU

Dr. Richard N. Holmes, Pro-Vice-Chancellor, Open University, UK recently visited Indira Gandhi National Open University (IGNOU) and the State Open Universities in Hyderabad and Kota. His visit was a part of the assistance IGNOU receives from the Overseas Development Administration (ODA) of UK.

During the course of his 9-day visit Dr. Holmes had detailed discussions with Prof. G. Ram Reddy, Vice-Chancellor and Prof. B. S. Sharma, Pro-Vice-Chancellor of IGNOU. The discussions centred round the adequacy and relevance of the existing assistance the UK Open University provides to its Indian counterpart. He also discussed further collaborations the two universities could have in future, especially in the light of the proposed Commonwealth Network. Dr. Holmes was greatly impressed by the speed with which IGNOU has prepared its courses. He opined that soon IGNOU would become, probably, the largest Open University in the world.

Dr. Holmes also had discussions with Prof. Shakti R. Ahmed, Director, School of Sciences, Prof. S.C. Goel and other members of the Faculty of Life Sciences of the University. The discussions focussed on the development of self-instructional print material in Life Sciences as well as the organisation of practical component through the distance education mode, which is being tried out for the first time in India at IGNOU. Dr. Holmes took special interest in understanding the Regional Services of IGNOU and had a meeting with Dr. S. N. Chaturvedi, Director, Regional Services Division.

Dr. Holmes also visited the Andhra Pradesh Open University, Hyderabad and the Kota Open University, Kota, to understand the progress of these universities as well as the relationship these universities have with IGNOU.

Fellowships & Visitorships in USA

The University Grants Commission (UGC) has asked the Universities and their affiliated colleges to sponsor teachers for some fellowships and visitorships for post-doctoral research work at the universities and the other institutions in the United States.

Teachers with a minimum of 10 years' teaching experience and published research work are eligible for these fellowships and visitorships. The fellowship will be for a period of one academic year (6-10 months), while the visitorship will be for a short period (2-3 months). The U.G.C. will provide international air-fare from India to U.S.A. and back. In addition, the U.S. authorities will provide allowance for maintenance, books and study related travel in that country.

The fellowships/visitorships are for fundamental studies in frontier areas in Physics, Chemistry, Mathematics, Life Sciences, Earth Sciences and Bio-Technology, Laser Technology, Marine Resources Development, Computer Science and Technology, Semi-Conductor Technology, Micro-Processors Applications and Micro-Electronics, Communication Technology, Educational Technology and Mass Media, Renewable Energy Studies, Environmental Sciences and Technology, Urban Development and Planning, Transport Studies and Social and Economic History (including Histriography), Science-Technology and Society, Comparative Literature, Literature and Society, Performing Arts, International Economic Cooperation, Money and Finance, Economics of Energy, Policy Sciences and Comparative Ethnography, Education, Planning and Management, Philosoppy of Sciences, Social and Political Philosophy.

Interested teachers may contact their own Universities. The nominations should reach the University Grants Commission latest by 31st July, 1988.

Project Methods of Teaching

A workshop on "Project Methods of Teaching" was recently conducted by Curriculum and Educational Media Development Centre of the Anna University. The objective of the workshop was to outline a project work on the production and development of a small centre lathe using the standard machine tools and the task was to be performed to meet the industrial standards in the areas of Mechanical, Civil, Electrical and Electronics Engineering respectively.

The resource persons for the workshop came from SPIC, TTTI, IIT and from Anna University itself. The participants of the workshop were from among the Lecturers/Assistant Professors of the constituent units of Anna University, namely, College of Engineering, Guindy, Madras Institute of Technology and Alagappa College of Technology who are in-charge of Projects/Workshops in the various departments.

OUAT Organises State Level Training Programmes

The State level training programme in Rice Production Technology, sponsored by the Ministry of Agriculture, Govt. of India was recently organised in the Extension Education Directorate of the Orissa University of Agriculture & Technology for the subject matter specialists of the State Deptt. of Agriculture, Orissa.

The University also organised a four-day training programme in Mushroom production technology in the College of Agriculture, Bhubaneswar in which 33 persons from different voluntary organisations of Orissa participated.

Continuing Education in Computer Applications

The Department of Electronics, Government of India, has approved a Continuing Education Programme in Computer Applications to be sponsored by Indian Society for Technical Education (ISTE).

The Thapar Institute of Engineering & Technology, Patiala has started an 8-week programme on 'Data Processing Techniques' from June 13, 1988. The course contents are Computer and Modern Office and Data Processing in Business; COBOL; Ciles and Program Design; System Analysis & Design; Data-Base; and Fundamentals of CAD, CAM and Spreadsheet. Fifty participants are attending the course.

This is the second course being run by the Institute while the first was on "Programming and Programming Methodology" and was conducted in June/July, 1987.

JNU Introduces M. Phil. in Russian

The Academic Council of the Jawaharlal Nehru University (JNU) has approved the institution of M.Phil Programme in Russian in the Centre of Russian Studies of the School of Languages from the Academic Year 1988-89. This is in accordance with the structure of courses for the programme approved by the Board of the School.

The Council has also accepted the recommendations of the Board of the School of Languages for providing for entry point for admission to 2nd year (3rd Semester) of the five-year integrated programme in languages to such of the candidates who successfully complete first year of B.A. under 10+2+3 pattern of education from a recognised university or any other public examination recognised by JNU as its equivalent.

Volunteer Corps for Literacy

The Indian Adult Education Association (IAEA) has formed a National Volunteer Corps for eradication of illiteracy under the National Literacy Mission. Its immediate task will be to organise a short-term campaign to eradicate illiteracy and to create an atmosphere for the emergence of a learning society.

The Association has decided to enlist cooperation of 1.25 lakh students/volunteers in the Union Territory of Delhi at the first stage of the programme to provide literacy education to 1.25 lakh illiterate adults.

IAEA has appealed to the students, the educated youth, house wives, ex-servicemen, pensioners and other social workers to join the volunteer Corps. The State Resource Centres for Adult Education in Delhi and other parts of the country will help the volunteers with reading material suitable to the specific groups of learners.

The Association has initiated preparatory steps to launch this programme in a massive way with effect from October 2, 1988. The volunteers may get themselves enrolled at the Office of the Indian Adult Education Association, 17-B, Indraprastha Estate, New Delhi or with any other educational/social institution collaborating with IAEA in this national programme.

News from Agril. Varsities

HAU Veterinary College Celebrates 40th Anniversary

Dr. G.C. Negi, Vice-Chancellor Himachal Pradesh Krishi Vishva Vidyalaya, Palampur, inaugurated the 40th Anniversary Celebrations of College of Veterinary Science of the Haryana Agricultural University (HAU). He said Veterinary education and manpower provision were among the most important matters confronting the Veterinary profession at this time. The pattern of growth of veterinary activities in the years to come will have to be perceived keeping in view not only the present level of development and the size of human and animal population, but also the changing pattern of animal husbandry practices and its impact on animal health and the financial resources. For future planning it is worthwhile to learn from the developments in other parts of the world. For instance, in the West European countries and North America, the number of holdings with cattle, pigs and poultry has been decreasing while the number of animals per holding per man employed and per hectare has been increasing.

Dr. Negi observed that the Veterinary education has been, so far, based on training the students on the patho-physiological approach with great attention being paid to clinical diagnosis. Although priority for this approach should be retained in the future, yet it should be noted that as a result of the present orientation towards sick animals, comparatively little attention is or has been given to the healthy ones. This is somewhat irrational as usually there are more healthy animals in a herd than sick ones.

Dr. Har Swarup Singh, Vice-Chancellor, Haryana Agricultural University, in his presidential address asked the scientists to enable the farmers to produce more and get higher income through an effective animal health programme. After green revolution it was the turn of the white revolution. 'we are aware of the fact that in comparison with crop cultivation, much less attention has been paid to animal production and control of animal diseases. It is the need of the hour that the farmers should be helped in diversified ways', he added.

PAU Develops Theileria Vaccine

A research team led by Dr. A.S. Grewal, Professor of Immunology of the Punjab Agricultural University has successfully developed a Theileria vaccine culture to control Theileriosis, an important disease affecting high milk yielding imported pure and their crossbred with local Indian cattle. The mass scale cross-breeding programme, launched at national level to get higher milk yield, suffers a major setback due to this disease. On accout of the non-availability of drugs to treat the suffering cattle, the only alternative is to use vaccine as preventive measure.

A new diagnostic test for Theileria, developed earlier by Dr. Grewal along with the availability of this vaccine culture, sets the stage for the effective control of this disease.

The industrial significance and field applications of these recent developments would be to provide information on incidence/prevalence of theileriosis in cross-bred cattle, buffalo and indigenous cattle; rate of occurrence of new infection from season to season; role of local cattle and buffalo as reservoir of infection for cross-bred cattle and buffalo as reservoir of infection for cross-bred cattle; assessment of demand and practical significance of Theileria vaccine for its control; monitoring vaccination trials in the field, correlation between infection and productivity of the animals.

News from UGC

INSA T-1B Programme of UGC

Between 1st July to 9th July, 1988 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is of one hour duration every day from 12.45 p.m. to 1.45 p.m. (Repeated from 4 p.m. to 5 p.m.) and will be available on the TV Network throughout the country. For the viewers in Delhi and surrounding areas these programmes can be seen on the second channel.

1.7.88

"The Fundamental Theorem of Calculus."
"Saving the People"
"Sick Oceans"

2 7.88

"Literature and Music"
"History of Clothing—IV-Cotton"

3.7.88

No Telecast

4.7.88

"Optics—X—Wave Length"
"Raw Materials—Bananas"
"Issues of Pricing Agricultural Products"

5.7.88

"Plastics"
"Taleteach—V"
"Nutritional Deficiency Among Children"

6.7.88

"Reproducing the Reality-Offset Printing"
"Diabetes : Restoring the Balance"
"University Round Up"

7.7.88

"Introduction to COBOL-V; A Review"
"In Search for Oil"

8.7.88

"Taylor Polynomials"
"Moving Pictures in Anthropology"
"Museum of Live Nature-II"

9.7.88

"European Model Music"
"History of Clothing—V; Silk"

UGC Fellowships Value Enhanced

The University Grants Commission (UGC) has revised the emoluments rules and guidelines for Junior Research Fellows and Research Associates. The revised emoluments will be effective from 1.4.1987.

The revised value of Junior Research Fellowship would be Rs. 1800/- p.m. in the first two years and Rs. 2100/- in subsequent years. Revised emoluments will be applicable to those who have qualified in the National level tests conducted for the University Grants Commission, jointly by the UGC and CSIR, and GATE. Research Associateships as existing are in four slabs of Rs. 1400/-, Rs. 1600/-, Rs. 1800/- and Rs. 2,000/- have also been revised in the slabs of Rs. 2200-100-2700, Rs. 2700-100-3200, Rs. 3200-100-3700 and Rs. 3700-125-4325 respectively.

The scales of pay of Research Scientists selected and placed at various institutions by the Commission, have also been revised and brought at par with the revised pay scales of Lecturers, Readers and Professors with effect from 1.1.1986. The revised schemes for JRF, RA & RS for future selections have been circulated and universities advised to claim arrears due to the enhancement.

News from Abroad

Evaluating Corporate-Campus Cooperation

The Business-Higher Education Forum, an organization of campus and corporate chief executives affiliated with the American Council on Education has recommended that colleges, universities, and corporations need to improve the way in which they evaluate their collaboration in research and technology. It has noted that cooperative research and development and technology exchange programs have increased threefold in the last 10 years.

In a recent report it has observed that "the recent proliferation of partnerships demonstrates beyond a doubt that our two sectors are willing to cooperate—a significant improvement over the environment that existed decade ago." "The critical challenge" the report, further said, "is to ensure that our cooperative research and technology exchange programs are in fact producting, or will produce, their intended results."

To that end, the report made one principal recommendation: "Universities and corporations need to assess the results of their collaborative research and technology exchange efforts more systematically and effectively."

The two-volume report, entitled "Beyond the Rhetoric: Evaluating University-Industry Cooperation in Research and Technology Exchange," was prepared by a steering committee of forum members that was co-chaired by Stanley O. Ikenberry, President of the University of Illinois, and Jack D. Sparks, retired chairman of the board of Whirlpool Corp.

"We are tremendously impressed by the multiplicity and variety of university-industry relationships that have developed," Ikenberry said. "But we are concerned that efforts to assess programs have not always kept up with the rapid proliferation of exchanges. As a result, program participants are not always sure whether they're getting the intended results or if they're on the right track."

Sparks said the forum is not recommending "a single set of evaluation criteria. There's far too much diversity for that. Each program must be measured individually—on its own merits."

The first volume of the report, directed at chief executives, offers recommendations that draw from successful programs illustrating a range of corporate-academic "interactions."

The second volume is designed for administrators and evaluators of cooperative programs. It includes guidelines for defining program objectives, measuring university-industry cooperation, and designing an evaluation system.

The report is available from the Business-Higher Education Forum, One Dupont Circle, Suite 800, Washington, DC 20036. The cost is $9 for volume 1 and $16 for volume 2: both volumes cost $20.

Environmental Education at all Levels of Teaching

The Commission of the European Communities for South Asia has recently adopted a proposal for a Council Decision calling on the relevent authorities of the Member States to promote the introduction of environmental education at all levels of teaching as well as in the context of vocational and adult training programmes. The proposal calls on the competent authorities of the Member States to give consideration to the basic aims of environmental education when drawing up curricula, make provision for practical activities, develop teachers' knowledge, encourage their further training and provide teachers and pupils with appropriate teaching materials.

At Community level, the proposal invites the Commission to : produce an inventory of initiatives, organize meetings, seminars and symposia, place, basic documentation at the disposal of teachers and pupils promote meetings between young Europeans, encourge initiatives by young people, organize summer courses at European universities and include cooperation on environmental matters between the academic world and industry in the ARION, ERASMUS and COMETT programmes.

According to this proposal, the objectives of education in matters relating to the environment are to increase public awareness of the problems existing in this field and to guide the citizen's behaviour in the direction of the greatest possible protection of the environment and natural resources.

The achievement of these objectives demands an awareness of the environment as the common heritage of mankind; the ecological balance and the need to safeguard it; the need for a rational utilisation of natural resources; the effects of human activities on the local and world environment, the way in which each individual can, by his own behaviour, particularly as a consumer, contribute to the protection of the environment ; and the right to enjoyment of an unpolluted environment.

We Congratulate...

Dr. Maheswar Mishra, Prof. & Head, Deptt. of Animal Production, College of Veterinary Science and Animal Husbandry, Orissa University of Agriculture & Technology, Bhubaneswar who has been awarded Watumul Foundation Medal for outstanding contribution in the field of Life Sciences.

Books Received

(1) Aggarwal, J.C. and Agrawal, S.P. **Our Survival : Clean Life, Clean Politics and Clean Administration**. Delhi, Doaba House, 1987. 127p. Rs. 30/-.

Decries the sharp decline in the value system after the independence and makes a bold plea for inculcation of values, eradication of corruption and clean administration. Contents include vedic teachings on clean life, fundamental duties of citizens, 12 great spiritual leaders on clean life, our achievements, our non-achievements, corruption and its origin, portrait of clean public servant, and action oriented 49 Point Programme.

(2) Craig, Tom and Wate, Clive, eds. **University Entrance 1988: The Official Guide.** London, Association of Commonwealth Universities, 1987. 369p. £9.50.

Published by the Association of Commonwealth Universities (ACU) for the Committee of Vice-Chancellors and Principals of the Universities of the United Kingdom (CVCP), University Entrance 1988 is the new annual publication which seeks to replace the 'Compendium of University Entrance Requirements' which had served students and their parents for over two scores of years and had come to be accepted as an essential source of information on entrance to universities in U.K. Colourfully produced, the new Guide provides profiles of 82 universities and colleges with standardised information on student enrolments, libraries and computer facilities, accommodation and entrance policy and practices, etc. The standardised format allows for comparisons between different universities. 59 subject tables which list 9,000 courses that are offered by British Universities, listing their entrance requirements, constitute the hall mark of the new annual. The fact that the Guide has been produced in collaboration with the Universities Council for College Admissions vouchsafes the authenticity of the data.

UNIVERSITY OF DELHI SOUTH CAMPUS

Benito Juarez Road, New Delhi-110 021

ADMISSION NOTIFICATION 1988-89

Admission to the following Post-Graduate Courses leading to Master's Degree in the Faculties of Arts, Social Sciences, Mathematics and Inter-disciplinary and Applied Sciences for the session 1988-89 for the students who have pursued 15 years of education will be made through centralized registration at South Campus, Benito Juarez Road, New Delhi-110 021 from 1-7-1988 to 8-7-1988 (except Saturday's and Sunday's) from 9.00 A.M. to 1.00 P.M. and 5 P.M. to 7 P.M.

Applied Psychology, Business Economics, Commerce, English, History Hindi, Philosophy, Political Science, Sanskrit, Mathematics, Biochemistry, Genetics, Microbiology. Electronics, Post B.Sc. Diploma in Electronic Instrumentation.

For M.Sc., in Plant Molecular Biology Admission will be made on the basis of an Admission Test and Interview for which separate notification has already been issued.

Bulletin of information containing details about the eligibility requirements, procedure for registration, etc. can be obtained on or after 24-6-1988 from the office of the South Campus, Benito Juarez Road, New Delhi-110 021 on payment of Rs. 2/- in cash or a crossed Indian Postal Order for Rs. 2/- drawn in favour of the Assistant Registrar, South Campus payable at the New Delhi Post Office alongwith a self addressed envelope (Size 13 cm x 20 cm) with postage stamps worth Rs. 2/-.

Note : (i) Students will be free to Register their names at either South Campus or North Campus or at both Campuses in so far as subjects in the Faculties of Arts, Social Science and Mathematics are concerned.

Registration for Business Economics, Electronics, Genetics, Microbiology, Biochemistry and Post B.Sc. Diploma in the Electronic Science would be done only at the South Campus.

Students may also note that the number of seats available in various courses at each Campus is limited.

(ii) Admission to the South Campus and its colleges will be made independently in order of merit from amongst the candidates registered at South Campus according to the number of seats available.

M.Phil PROGRAMME

M. Phil Programme in Commerce, Business Economics, Hindi, Political Science, Biotechnology, Electronics Science, Plant Molecular Biology are offered at South Campus. For admission forms, etc. please contact the office of the concerned department at South Campus.

Ph.D. PROGRAMME

Ph.D. Programme is offered by all the Departments in the respective Faculties. For the Faculties of Arts, Social Science and Mathematics please contact the respective Faculties at the North Campus; and for the Faculty of Inter-disciplinary and Applied Science, the Dean at South Campus may be contacted.

Prof. Abad Ahmad
DIRECTOR

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month, while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research scholars and students of education are welcome to use these resources. The Library is open from 9-00 a.m. to 5-30 p.m. Monday through Friday. Access can also be had through Inter library loan for which requisition must be made through your Librarian.

ADDITIONS TO AIU LIBRARY

Association of Indian Universities, Delhi. Question bank book series 13 Electrical power system. New Delhi, Author, 1987, xx, 424p.

Central Bureau of Health Intelligence, New Delhi. *Health information of India 1987*. New Delhi, Author, 1987. xxiii , 398p.

Debray, Regis. *Teachers, writers, calebrities : The intellectuals of modern France.* London, Verso (c 1981) xxvi, 251p.

D'Souza, Lena and Prabhakar, Annamma. *Managing performance appraisal in educational organisations : A practical guide.* Bombay, SNDT Women's University (c 1987) 33p.

Encyclopaedia of Sports Games and pastimes. Delhi, Sri Satguru Publications, 1988. 772p.

Feller, Irwin. *Universities and state governments : A study in policy analysis.* New York, Praeger (c 1986) xvii, 170p.

Hough, J. R. *Education and the national economy*. London, Croom Helm (c 1987) 307p.

Kundu, C.L. *Indian yearbook on teacher education.* New Delhi, Sterling (c 1988) xx, 467p.

Lewis, John, ed. *Science and technology and future human needs.* 9V. Oxford, Pergamon Press, 1987.

- V1. Lewis, J.L. and Kelly, P.J., ed. *Science and technology education and future human needs.* xii, 185p.
- V2. Frazer, M.J. and Kornhauser, A., ed. *Ethics and social responsibility in science education.* x, 264p.
- V3. Waddington, D. J, ed. *Education, industry and technology.* xviii, 361p.
- V4. Graves, Norman J., ed. *Land, water and mineral resources in science education.* xii, 312p.
- V5. Kelly, P.J. and Lewis, J.L. ed. *Education and health.* xi, 293p.
- V6. Rao, A.N., ed. *Food, agriculture and education.* ix, 247p.
- V7. Kirwan, D.F., ed. *Energy resources in science education.* xvi, 214p.
- V8. Baez. *Environment and science and technology education.*
- V9. Taylor, Charles, ed. *Science education and information transfer.* x, 230p.

Lynton, Ernest A. and Elman, Sandra E. *New priorities for the University : Meeting society's needs for applied knowledge and competent individuals.* San Francisco, Jossey Bass (c 1987) xix,194p.

Miller, Richard I. *Evaluating faculty for promotion and tenure.* San Francisco, Jossey-Bass (c 1987) xv, 257p.

Mishra, R.S. *How I faced an invited trouble : Problems and suggestions.* Lucknow Prakashan Kendra, 1988. xiii, 143p.

Nuttgens, Patrick. *What should we teach and how should we teach it ? Aims and purpose of higher education.* Hants, Wildwood House (c 1988). vi, 165p.

Parikh, Ramlal, ed. *Population education an approach to formulation of curricula : Report of the Task Force on curriculum development.* Ahmedabad, Population Education Resource Centre (c 1987) ix, 37p.

Porter, D. and Padley, J.S., ed. *Training university administrators in Europe : An OECD/IMHE report.* Hampshire, Gower (c 1982) 137p.

Self, John, ed. *Artificial intelligence and human learning : Intelligent computer-aided instruction.* London, Chapman and Hall (c 1988) xix, 432p.

Shah Beena, ed. *Revamping the examination system.* New Delhi, Northern Book Centre (c 1988) xiii, 221p.

Straughan, Roger and Wilson, John, ed. *Philosophers on education.* London, Macmillan, 1987 x, 180p.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities.

HUMANITIES

Fine Arts

Music

1. Kapoor, Tripat Kaur. *Uttari Bharat mein sangit shiksha, 1900-1980 tak.* Kurukshetra.

2. Santosh Kumari. *A critical study of Haryanavi folk music and its affinity with Hindustani classical music.* Kurukshetra.

Language & Literature

English

1. Anand, Inder Paul. *Samuel Beckett's plays : A study in existential form.* Kuukshetra.

2. Chansoria, Alok. *A critical study of the writings of Jawaharlal Nehru.* Durgawati. Dr. S.B. Shrivastava, Department of English, Rani Durgawati Vishwavidyalaya, Jabalpur.

3. Oommen, Susan. *The social radicalism of Norman Mailer.* Kerala. Dr. K. Ayyappa Panicker, Prof. and Head, Institute of English, University of Kerala, Trivandrum.

4. Singh, Sunaina. *The image of the new woman in Margaret Atwood and Anita Desai.* Osmania.

5. Somvanshi, Jagdish Singh. *Myth and legend in the novels of John Steinbeck.* Kurukshetra.

6. Talwar, Neelima Satya. *Appollo's Laural Bough : A study of the theme of natural science in drama.* Baroda.

7. Vinay Kumar. *A critical study of imagery in Walt Whitman's poetry.* HS Gour. Dr. (Smt) Urmila Verma, Deptt. of English, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

Sanskrit

1. Mishra, Surendra Mohan. *Anumenapariccheda of Nyayabhusana : A study.* Kurukshetra.

2. Muni Lal. *Prakashit Sanskrit Chhaya Natakon ka sameekshatmak adhyayan.* Kurukshetra.

3. Pushp Lata. *Ramanuja-Bhasya on the Bhagavadgita : A study.* Kurukshetra.

4. Sharma, Radhe Shyam. *Patanjala Mahabhasya ke adhar per Sanjna evam Paribhasa Sutron ka sameekshatmak adhyayan : Prathama Navahnika ke sandarbh mein.* Kurukshetra.

5. Shukla, Kamal Kishor. *Rukmani-Haran Mahakavya ka samalochanatmak adhyayan.* Durgawati. Dr. R.B. Dwivedi, Reader, Department of Sanskrit, Rani Durgawati Vishwavidyalaya, Jabalpur.

6. Singh, Chitranjan Dayal. *Swami Dayananda ke Yajur veda bhasya mein Indra evam Marut ka swarup : Ek sameekshatmak adhyayan.* Kurukshetra.

7. Sudan, Sunita. *The literary study of the inscriptions of the Parampara Dynasty.* Jammu. Dr. Ved Ghai, Prof., Department of Sanskrit, University of Jammu, Jammu.

Punjabi

1. Amarjeet Kaur. *Bidesi Punjabi galp : Ik alochanatmak adhyayan.* Kurukshetra.

2. Gurdev Singh. *Dhani Ram Chatrik dee kavita da. alochanatmak adhyayan.* Kurukshetra.

3. Ramesh Kumar. *Nanak bani da chhand vidhan.* Kurukshetra.

Kangri

1. Madhu Bala. *Phonology of Kangari dialect.* Kurukshetra

Hindi

1. Ram Rattan. *Acharya Nand Dulare Vajpayee ke sameeksha sidhant.* Kurukshetra.

2. Saraswat, Katyayani. *Prasad aur Mahadevi kee pratikyojana ka tulnatmak adhyayan : Kamayani aur Deepshikha ke sandarbh mein.* Kurukshetra.

3. Sharma, Geeta. *Hindi niti kavya aur usmein Vrind ka sthan.* Devi Ahilya. Dr. S.S. Vyas, Radio Colony, Indore.

4. Shakuntla. *Bhishma Sahni ke sahitya mein samajik, rajnaitik chetna.* HP.

5. Siddharth, Archana. *Adivasi samaj ka badalata yatharth aur Hindi-katha sahitya.* JNU. Dr. Manager Pandey, Centre of Indian Languages, Jawaharlal Nehru University, New Delhi.

6. Tej Singh. *Pragatisheel andolan aur Nagarjun ka katha sahitya.* JNU. Prof. (Mrs) Savitri Chandra, Centre of Indian Languages, Jawaharlal Nehru University, New Delhi.

Urdu

1. Khurshid Ahmed. *Krishan Chander ke navelon kee tahzeebi faza.* JNU. Dr. Aslam Parvez, Centre of Indian Languages, Jawaharlal Nehru University, New Delhi.

Bengali

1. Abdus Sattar. *Bangla upanyase gramin jibani uttarupanibesh parba.* Calcutta.

2. Bandyopadhyay, Sibani. *Rabindranath-o-nabaparijyay Bangadarshan, 1308-1312 B.S.* Burdwan. Dr. Amitrasudan Bhattacharyya, Formerly Lecturer, Department of Bengali, University of Burdwan, Burdwan.

3. Chattopadhyay. Sibabrata. *Rabindranather Nataker Sanlap.* Burdwan. Dr. Saktibrata Ghosh, Reader, Department of Bengali, University of Burdwan, Burdwan.

4. Dam. Mrinal Kanti. *Time of novel and Bankim Chandra.* NBU.

5. Khan, Layak Ali. *Bangla sahitye Musalman samaj-o-charitra.* Calcutta.

6. Saha, Radheshyam. *Progressive literary movement and modern Bengali poetry, 1935-1950.* NBU.

Oriya

1. Meher, Jugal Kishore. *Bhima Bhoinka rachanare adhyatmikatara swarupa.* Sambalpur. Dr. K.R. Panigrahi, Reader, Department of Oriya, Sambalpur University, Burla.

2. Parida, Pramod Kumar. *Oriya kavyare subhasana, from the kavya yuga to the end of Radhanath age.* Sambalpur. Dr. B.C. Jena, Reader, Department of Oriya, Sambalpur University, Burla.

Manipuri

1. Singh, Waribam Raghumani. *A comparative study of Imphal and Kwatha dialects.* Manipur. Dr. M.S. Ningomba, Assoc. Prof., Department of Linguistics, Manipur University, Imphal.

Telugu

1. Rama, Gogineni. *Andhra Bhagavatamulu : Stree patranuseelanamu.* Andhra.

2. Suryanarayana Murty, Jayanti Venkata. *Andhra Mahabharatam : Dharma Raju.* Andhra.

3. Venkata Lakshmi, Gorugantula. *Ekoji's Dwipada Ramayana : A critique.* Andhra.

Geography

1. Hullodi, Mrutyanjaya Shivappa. *Urban planning : A case study of Gadag-Betageri.* Karnatak. Dr. M.F Karennavar, Administrator, Karnatak University, Post Graduate Campus, Lingaraj College Compound, Belgaum.

2. Innayondang *Levels of rural development in Nagaland : A spatial analysis.* Gauhati. Dr. Md. Taher Prof. & Head, Department of Geography Gauhati University, Gauhati.

3. Joshi, Hem Lata. *Fertilizer industry of India : A geographical appraisal.* Rajasthan. Prof. Indra Pal, A-14 Anita Colony, Gandhi Nagar, Jaipur.

4. Mitra, Satibrata. *Industrial development in the North Eastern part of Calcutta metropolitan district.* Burdwan. Prof. Monoranjan Choudhuri, Prof. (Retd), Department of Geography, University of Burdwan, Burdwan.

5. Roy, Amar Nath. *The sacred complex of Rajgir : A study in cultural geography.* Magadh.

History

1. Abhay Kumar. *A critical study of the socio-economic life under Chandell's as depicted in inscriptions, coins and art pieces in Jajakbhukti.* HS Gour. Dr R.N. Agarwal, Department of Ancient Indian History, Culture and Archaeology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

2. Biswas, Sagarika. *Studies on the impact of Ramakrishna Movement in South India.* Osmania.

3. Choudhary, Hasen Uzzaman. *Consensus and political development perspectives in the History of Bangladesh, 1947-72.* Calcutta.

4. Pramodini Devi, Nongmaithem. *The cultural history of early Manipur.* Manipur. Prof. Gangmumei Kabui Department of History, Manipur University, Imphal.

5. Pravabati Devi, P. *The history of rise and growth of Hinduism in Manipur from the earliest times to the beginning of the 19th century A.D.* Manipur. Dr. G.P. Singh, Assoc, Prof. Department of History, Manipur University, Imphal.

6. Ramanaiah, J. *A study of the temples in Karimnagar District.* Hyderabad. Prof. T. R. Sharma, Head, Department of History, University of Hyderabad, Hyderabad.

7. Singh, N. Joykumar. *Social movemensting Manipur, 1917-1951.* Manipur. Prof. Gangumei Kabui, Department of History, Manipur University, Imphal.

8. Sinha, Kripan. *Comparative studies in the ideas and theories of Kautilya and Machiavelli.* Calcutta.

Just Published

Bibliography
On Women At Work
In India

AN UPDATE 1985-1986

by
Suchitra Anant
Sarmila Ghosh
S.V. Ramani Rao

INSTITUTE OF SOCIAL STUDIES TRUST

S.M.M. Theatre Crafts Museum
5, Deen Dayal Upadhyay Marg
New Delhi-110002.

Rs. 75/- per copy

इन्दिरा गाँधी राष्ट्रीय मुक्त विश्वविद्यालय

INDIRA GANDHI NATIONAL OPEN UNIVERSITY

ANNOUNCES ADMISSION TO CERTIFICATE PROGRAMME IN FOOD AND NUTRITION (SEPTEMBER 1988)

Indira Gandhi National Open University, an autonomous institution set up under an Act of Parliament, invites applications for admission to its Certificate Programme in Food and Nutrition'. The basic task of the Indira Gandhi National Open University is to advance and disseminate learning and knowledge by a diversity of means including the use of communication technology. In the process it has to increasingly aim at democratisation of higher education and maintenance of high qnality, covering larger segments of population, vocations and professions. Alongwith this, it has to encourage and strengthen the open and distance education systems in the country.

1. Who Should Apply ?

This programme is useful for all who are concerned with the health of family and community. It is open to all literate MEN and WOMEN who have attained the age of 20 years. However, being a pilot programme, initially it is open to the residents of the union territory of Delhi, and the States of Uttar Pradesh, Gujarat, Assam and Andhra Pradesh. Though the scheme is open in nature and the University would make the programme accessible to all above who are otherwise eligible for it, it however reserves its right to rationalise the limit in admissions depending on facilities and resources avaiable with it.

2. How Will You Study ?

The University offers opportunities for higher education through the use of distance teaching methods according to which the students will be supplied carefully designed self-instructional printed study materials, assignments for home work, facility for the use of audio-video cassettes and counselling/tutoring at the Study Centres spread all over the country. Counsellors/Tutors shall be available at study centres to which the students will be allocated after admission is finally confirmed.

3. How Long would you Study the Course ?

A minimum study period of 6 months is required to be devoted. However, the students have the freedom to complete the programme successfully in a maximum period of 2 years. Thus people engaged in their profession or domestic chores can pace their studies depending on time and other facilities available with them.

4. What will you Study?

The main thrust of this programme is on

—Knowledge and understanding of the basic facts relaetd to Food and Nutrition.

—Awareness of the existing common nutritional problems and supplementary feeding programmes.

—Management of food safety and economics of food, and

—Consumer awareness of the rights regarding food.

To suit the pace of learners the programme has been devised to be covered in three courses with related practicals interwoven in them.

CPFN—1	You and Your Food
CPFN—2	Your Food and its Utilization
CPFN—3	Economics of Food

5. In what Medium the Course will be offered ?

As a pilot programme the course will be offered in English, Hindi, Gujarati, Telugu and Assamese. Those who wish to take the course in Telugu will have to register for admission with Andhra Pradesh Open University for which there will be separate announcement by APOU.

6. How shall you be evaluated ?

(i) The first term-end examination will be held at the end of the prescribed duration of the Programme. The students can pace the studies by appearing at the subsequent term-end examinations organized every six months in one or more courses not completed in the first attempt.

(ii) The progress of the student will be assessed on a continual basis through assignments which the students will be required to submit on a regular basis as per schedule announced. The performance in continuous evaluation (assignments) will be counted towards final result as per the rules of the University.

7. How to Apply ?

Applications complete in all respects in the accompanied format alongwith the amount of programme fee should reach the University on or before Friday, the July 15, 1988. The relevant documentary evidences including the certificate of date of birth will be asked for only at the time of confirmation of admission to the Programme. It is therefore, advisable that authenticity of the information supplied in the Application Form is carefully ensured in the event of any information found incorrect or having any bearing on the eligibility of the case, the admission shall be liable to cancellation at any time.

The application forms should be addressed to :

The Director
Admissions and Evaluation
Indira Gandhi National Open University
A-39, Kailash Colony
New Delhi-110 048.

Please write APPLICATION-CPFN in block letters on the envelope containing the Application form. In case the candidates need acknowledgement, they should enclose a self-addressed postcard. The selected candidates will be sent communication by middle of August 1988.

APPLICATION FORM

Certificate Programme in Food & Nutrition

Last Date : Friday, July 15, 1988

This part of the advertisement may please be cut out and duly filled-in. For more copies for use of your friends and acquaintances/others, the form may be xeroxed or typed out or its columns be neatly re-drawn by hand if adequate facilities are not available.

General Instructions

1. While typing or redrawing by hand, draw only the columns. These should be in the same order as given in this proforma and should have sufficient space to write the needed information.
2. The entries be filled in English only and in CAPITAL LETTERS so that entries can be correctly recorded by the Computer.

1. Name CAPITAL LETTERS ONLY

Surname Name (First & Second)

Write only one letter in each box. Leave one box blank between Surname and Name. Please condense your name if the space is not sufficient.

2. Date of Birth

Date Month Year

3. Sex : Please write Code No. in the given box

1—Male. 2—Female

4. Nationality——————————————————

5. Father's Name

Surname Name (First & Second)

6. Postal Address (Complete)

1.

2.

3.

4. Village/Town

5. Distt & State

6. Pin Code

7. Educational Status

Write the Code of the highest qualification obtained by you:
Primary—1, Middle—2, Secondary—3.
Senior Secondary—4, and Graduation & Higher—5

8. Whether SC or ST Candidate?
(Write SC for Scheduled Caste or
ST for Scheduled Tribe, if applicable)

9. Write the Code No. of the area you belong to
Tribal—1, Rural—2, and
Urban—3.

10. Medium of Instruction
Please write the Code of related medium.

(a) For Delhi UT and Uttar Pradesh
Hindi=01, English=02.
(b) For Gujarat State
Gujarati=03,
(c) For Assam State
Assamese =04

11. Course Fee.

Remit Rs. 100 through a Bank Demand Draft payable to **"Indira Gandhi National Open University, New Delhi".**

Bank **STATE BANK OF INDIA ONLY**

Branch & Town——————————————————

Bank Draft No.——————————————————

(Letter Code) (Number) CAPITAL LETTERS ONLY

Date of issue——————————————————

I hereby declare that the particulars supplied by me are correct to the best of my knowledge and it will be supported by documents when asked for I am also fully aware of the fact that in the event of any information being found incorrec or misleading my candidature shall be liable to cancellation by the University any time.

Full signature of the Candidat

MINISTRY OF HUMAN RESOURCE DEVELOPMENT

(DEPARTMENT OF EDUCATION)

POLISH GOVERNMENT SCHOLARSHIPS FOR PRACTICAL TRAINING 1988

Applications on plain paper in the format at Annexure 1 are invited from Indian nationals for the award of 6 (six) scholarships offered by the Government of Poland for short term specialisation in the following subject fields :

(i) FISHERIES (ii) COAL MINING ; and
(iii) SHIP BUILDING

Value : Adequate maintenance allowance, free accommodation and free medical care when necessary, will be paid by the Polish authorities.

Duration : 5 Months.

Qualifications : for (i) Uniformally good academic record, with 60% or above marks in Master's degree in the subject concerned or related fields. For (ii) and (iii) 60% or above marks in Bachelor's degree in Coal Mining/Mining Engineering and Naval Architecture respectively.

Note : Conversion formula is to be given where grades have been awarded by University/Institution.

Essential Experience : At least two consecutive years teaching/research/practical experience at the college or University level as on 1.10.1987 in subject field selected after passing the prescribed qualification. Successful completion of M.Phil./Pre Ph.D. would be considered as equivalent to the required experience.

Age : Must be less than 33 years as on 1.10,1987 (Relaxation in age upto two years will be given in the case of Scheduled Caste/Scheduled Tribe candidates). Upper age limit and experience can be relaxed but not by more than three months at the discretion of the Selection Committee in the case of brilliant candidates.

Passage Cost : Travel expenses from India to Poland and back will be borne by the candidate or his/her sponsors/employers. Subject to availability of funds, the passage cost may also be met by the Government of India, provided the candidate is eligible under the rules.

Note : (1) The following documents must be attached with the application (a) Attested copy of the certificate certifying the date of birth (b) Candidates belonging to SC/ST must attach a copy of certificate to this effect (c) Attested copies of marks sheets of the qualifying examination (d) Attested copies of all degrees/diplomas/certificates etc. (e) Candidates must furnish a clear and precise programme of study/research (f) A recent passport size photograph of the candidate duly signed in ink must be affixed on the prescribed application form (g) A crossed Indian Postal Order of Rs. 5/- (Rs. 1.25 in the case of SC/ST and other backward classes) issued after the date of publication of this advertisement and payable to the Secretary, Ministry of Human Resource Development, Department of Education, New Delhi (2) Application in the subject fields other than those specified above will not be considered (3) Candidates who have already been abroad for study/specialisation/training either on a scholarship or on their own are eligible to apply only if they have been in India for at least three consecutive years after their return from abroad (4) Application of candidates who are at present abroad, will not be considered (5) Candidates having contacts with Polish Institute (s) in the field of their study/training will be given preference (6) Candidates should have sufficient good knowledge of India and the donor country (7) Applications which do not contain Postal Orders and other required documents will be treated incomplete and will not be considered (8) No correspondence will be entertained with candidates not selected for interview/scholarship (9) Canvassing in any form will be a disqualification (10) Candidates must send their applications sponsored by their employers. Pending sponsorship by employer, an advance copy of the application duly completed in all respects may be considered provisionally provided the application through proper channel is received within a fortnight from the last date prescribed for receipt of applications. (Indian Postal Order is to be enclosed with the advance copy) (11) Applications received after the prescribed last date will not be entertained for consideration.

Candidates should apply for the above scholarships on plain paper (preferably typed) furnishing the required details/particulars to the Deputy Educational Adviser, Ministry of Human Resource Development (Department of Education), External Scholarship Division, Section ES-1, Room No. 516 'B' Wing, Shastri Bhavan, New Delhi-110001 latest by **15th July 1988**. Application received after this date will not be entertained.

———APPLICATION FORM———

Photograph

1. Scheme under which applied :
Subject.........Sub-subject.........Duration.........
2. Name in full as in passport Dr./Shri/Shrimati/Kumari (in Capital letters)
....
(Surname) First name and Second names
3. Name of father :...
4. Name of the sponsoring authority and/or name of the authority which will employ you on retuan from abroad.
5. (a) Date of Birth : (b) Place of Birth :
6. (a) Are you a citizen of India (b) State to which you belong : (c) Are you a member of Scheduled Caste, Scheduled Tribe or other backward Class ? If so, give particulars and attach Certificate from the District Magistrate of your place of residence in support of your claim.
For official use only

A	Q	E

7. Address of the applicant with Pin Code numbers : (i) Present/Mailing : (ii) Permanent :
8. Particulars concerning Examinations passed commencing with Matriculation or equivalent examination (attach attested photocopy of each certificate/diploma/degree for record).

University/ Board/ Institution	Examination passed with year	Class/ Divn.	Percentage of Marks & Position, if any.	Subjects taken

9. (a) Details of papers published, if any :
(b) Research Work done/practical training received.

Name of firm	Date of joining	Date of leaving	Monthly Honorarium/stipend/ Fellowship or Apprenticeship allowance, if any.	Nature of training

10. (a) Particulars of employment :

Office/Institution where employed	Date of joining	Date of leaving	Post held	Monthly Salary	Nature of duties

(b) Indicate what you have been doing since last examination mentioned in item 8.
(c) Have you any contact obligation with your employers ? If so, furnish details.

11. (a) Knowledge of foregin languages, if any (Attach proof if possible)

Skill		Very Good	Good	Fair	Nil
Comprehension	Spoken				
	Written				
Expression	Speaking				
	Writing				

12. Nature of proposed programme of study/research :
(a) Field of study :.........Main Subject......... Sub-subject.........
(b) Scholarship/Fellowship desired for: Training/Specialisation : Yes Doctoral Studies : Yes Post-doctoral studies : Yes
(c) Name of the Institution (if known) where admission/training is desired (in order of preference)
(d) Are you willing to accept a place at some other institution if the appropriate scholarship agency recommends it ?
(e) Have you already approached any University or University Professor in the country in which you intend to study? If so, give names and results.
(f) Degree sought, if any :
(g) Give, separately in extra sheets, brief statement in about 100 words each about :
(a) The work engaged in (b) Nature, programme of study/research desired.
13. Future prospects after studies/research :
(a) Plan for the future (b) How are these related to the technical or economic development of the country ?
14. (a) Have you applied for any other scholarship in the last two years ? If so, state the name(s) of the scholarship(s) and the subject of study/research proposed therein. Are you willing to be considered under any similar scholarship scheme involving study in another country ? If so, which ?
(b) If you had applied under this scheme previously, please indicate the result.
15. Give below the names of two persons (they must not be related to you) who are in a position to testify from their personal knowledge as to your fitness for the proposed course of study. They must be persons under whom you have worked or studied.
(i) Name with full address......(ii) Name with full address:.........

16. Have you ever been abroad ? If so, give the following particulars :

Country visited	Date of visit	Duration of visit	Purpose of visit	Scholarship received, if any

17. Father's Name (in full)
(a) Nationality (b) Occupation (c) Address.

*18. In case you are married, please state :
(a) The name of your Husband with full address
(b) Nationality (c) Occupation
(*) For married female candidates only.

19. Next of kin to be notified in the case of emergency (give name, address and relationship)

20. Crossed Postal Order of Rs. 5/- (Rs. 1.25 in case of SC/ST and other backward classes) issued after the date of publication of this advertisement and payable to the Secretary, Ministry of Human Resource Development (Department of Education) New Delhi must be attached with the application form. Kindly give details of Postal Orders attached.

Sl. No.	Postal Order No.	Date of Issue of Postal Order	Name of the Post Office Issuing the Postal Orders	Value of the Postal Order Rs. Ps

21. I hereby declare that the entries in this form and the additional particulars (if any) furnished in reply to the questions above are true to the best of my knowledge and belief.

Place :
Date : (Signature of the Candidate)

22. (a) Certified that Shri/Smt/Km.......is employed by us/me and he/she has been sponsored by us/me for study abroad.
(b) He/She will be relieved by me/us, if selected.
(c) I/We undertake that he/she will be permitted to join his/her department/organisation on return from study abroad. I/We will ensure that his/her terms and conditions of service i.e. salary, seniority, promotion, leave etc. will not be adversely affected on account of his/her absence and further that everything possible will be done to provide the scholar with work and conditions of service suitable to and commensurate with his/her qualifications/training obtained abroad.

(Signature of Employing/Sponsoring Authority)

Place :
Date : Seal of Office

@ Strike out if not applicable.

davp. 88/164

UNIVERSITY OF MADRAS

University Buildings, Chepauk, Madras-5

NOTIFICATION

Applications are invited for admission to (i) **M.Sc. Degree Course in Polymers** (Five-year Integrated Course) to be conducted at the Department of Poymer Science, University of Madras, Guindy Campus. **Eligibility** : Higher Secondary Examination (Academic) with Mathematics, Physics and Chemistry and (ii) **M.Sc. Plant Science** (Semester Pattern) to be conducted at the Department of Botany, University of Madras, Guindy Campus. **Eligibility**: B.Sc. Degree in Botany with First Class. For SC/ST candidates 55% minimum, for the academic year 1988-89.

Prospectus and application forms can be had from the Registrar, University of Madras, Madras-600005, on requisition with a Demand Draft for Rs. 30/- drawn in favour of the Registrar, University of Madras, together with a self addressed stamped envelope (size 28 x 13 cms) for Rs. 1-80. **Last Date for issue and receipt of filled in application is 7-7-1988.** Postal Orders and Money Orders are not accepted. Filled in applications should be sent directly to the Head of the University Department concerned and not to the Registrar, University of Madras, before the expiry of the last date.

The University reserves the right to start or suspend the conduct of any of the above courses, if the circumstances so warrant.

Major Dr. P. Kuttiappan,
REGISTRAR

CLASSIFIED ADVERTISEMENTS

UNIVERSITY OF CALICUT

G&A II 'C' SECTION

No. GA II C1/11443/86(2)

Calicut University P.O.

Dated : 2-6-1988

NOTIFICATION

Applications are invited from qualified candidates for appointment to the under mentioned posts in the University.

Sl. No. 1	Name of the Department 2	Category 3	No. of Posts 4	Nature of vacancy 5	Reservation, if any 6	Specialisation for the post, if any 7
1.	MALAYALAM	(a) READER	1	Permanent	OPEN	Nil
		(b) LECTURER	1	-do-	Latin Catholic	Nil
2.	ZOOLOGY	(a) PROFESSOR	1	-do-	ETB	Nil
		(b) LECTURER	2	1st Permanent	Latin Catholic	Bio-Physics
				2nd Temporary	OBC	Nil
3.	PSYCHOLOGY	LECTURER	1	Permanent	MUSLIM	Special wieghtage will be given to candidates possessing qualification in Experimenal psychology.
4.	COMMERCE AND MANAGEMENT STUDIES	(a) READER	2	Permanent	1st Open	Personnel Management
					2nd SC/ST	General Management
		(b) LECTURER	3	-do-	1st Muslim	Organisational Behaviour
				-do-	2nd OPEN	Operations research
				Temporary	3rd L.C.	Commerce
5.	CHEMISTRY	(a) READER	4	Permanent	1st OPEN	Environmental Chemistry
				-do-	2nd SC/ST	Organic Chemistry
				Temporary	3rd OPEN	Natural Products
				Permanent	4th Muslim	Inorganic Chemistry.
		(b) LECTURER	2	Permanent	1st ETB	Organic Chemistry
				Temporary	2nd OPEN	—

1	2	3	4	5	6	7
6.	LIFE SCIENCES	LECTURER	2	Temporary Permanent	1st OPEN 2nd SC/ST	Microbiology (VIIth Plan Post)
7.	LIBRARY SCIENCE	PROFESSOR	1	Permanent	OPEN	—
8.	PHYSICS	(a) READER	2	Permanent	1st SC/ST (Renotification)	Experimental Solid State Physics
				-do-	2nd OPEN	Experimental Nuclear Physics
		(b) LECTURER	1	Temporary	SC/ST	
9.	ENGLISH	(a) PROFESSOR	1	Permanent	ETB	
		(b) READER	2	Temporary Permanent	1st SC/ST 2nd OPEN	
		(c) LECTURER	1	Permanent	L.C.	
10.	PHILOSOPHY	READER	1	Permanent	ETB	Re-notification
11.	ECONOMICS (TRICHUR)	(a) READER	1	Permanent	ETB	Statistics
		(b) LECTUTER	2	Permanent Temporary	1st Muslim 2nd OPEN	
12.	BOTANY	(a) PROFESSOR	1	Permanent	ETB	
		(b) READER*	1	-do-	OPEN	Evolutionery Botany
		(c) LECTURER	2	-do-	1st Muslim 2nd OPEN	
13.	MATHEMATICS	LECTURER	1	Permanent	OPEN	
14.	SCHOOL OF DRAMA	LECTURER	1	Permanent	ETB	Children's Theatre.
15.	ARABIC	LECTURER	2	Temporary Temporary	1st ETB 2nd OPEN	
16.	EDUCATION	READER	2	Permanent Permanent	1st OPEN 2nd SC/ST	
17.	MASS COMMUNICATION	LECTURER	1	-do-	OPEN	
18.	HISTORY**	LECTURER IN HISTORY OF SCIENCE & TECHNOLOGY	1	Permanent	SC/ST	
19.	STATISTICS	PROFESSOR	1	Permanent	OPEN	VIIth Plan post
20.	LINGUISTICS	(a) READER	1	Permanent	OPEN	-do- Comparative Linguistics (to be posted in the School of Languages (English)
		(b) LECTURER	2	Permanent -do-	1st OPEN 2nd OPEN	In Tamil In Kannada (for the time being the posts will be attached to the Dept. of Malayalam.

1	2	3	4	6	6	7
21.	V.K. KRISHNA MENON MEMORIAL INSTITUTE OF INTERNATIONAL RELATIONS (DEPT. OF POLITICAL SCIENCE) (VIIth Plan Posts)	(a) PROFESSOR	1	Permanent	OPEN	International Relation.
		(b) READER	1	Permanent	OPEN	International Relation with West Asian Studies.
		(c) LECTURER	2	Permanent	1st OPEN 2nd ETB	Political Science with International Relations.

2. **Scale of Pay :**

1. PROFESSOR : Rs. 2450—3600
2. READER : Rs. 1950—2950
3. LECTURER : Rs. 1300—2725

3. In respect of the renotified vacancies at Sl. Nos. 8 (a) 1st post and 10 above, if no suitable candidates are available from the community for which the post is reserved candidates from the other reserved commuuities will be considered for these vacancies as per rules of communal rotation. If no candidates even from the other reserved communities are available for these vacancies, they will be treated as 'OPEN' as per rules of communal reservation.

4*. If no qualified candidate is available for the post of Reader in Evolutionery Botany, the post will be downgraded to that of LECTURER and filled up as reserved for L.C.
**Without specialisation subject to approval by the UGC.

5. In respect of all renotifications of vacancies shown above, those candidates who had responded to earlier notification should submit fresh applications in response to the present notification.

6. The prescribed application forms and other details can be had from the undersigned on request, remitting the cost of Rs. 12/- in respect of each post.

7. In the case of candidates applying from outside the state of Kerala remittance is to be made by postal order in favour of the Finance Officer, University of Calicut payable at the Caiicut University Post Office.

8. Those applying from within the State of Kerala should remit the cost of the forms at a Government Treasury to the credit of the Head of Account "8443-00-106-CUF" of the Calicut University in the case of remittance in a Treasury in Malappuram District and to the credit of "8658-102-04 (i) B CUS" in the case of remittance in any other treasury in the State.

9. The Challan receipt/Indian Postal Order should be accompanied by a self-addressed cover affixed with postal stamps worth Rs. 3/40 (Rupees three and paise forty only) for obtaining the application form by Post.

10. Candidates belonging to SC/ST unemployed, Physically handicapped persons and ex-Servicemen eligible for pension are exempted from remitting the cost of application forms.

11. Candidates from abroad may apply in plain paper accompanied by copies of certificates remitting application fee of Rs. 100/- (Rupees one hundred only) and they will be given additional time of 15 days for submitting their application.

12. Age limits, qualification etc. will be as prescribed in the detailed notification which will be supplied along with the prescribed application forms.

13. The last date for receipt of application in the University Office is **20-8-1988.**

Dr. S. Balaraman
REGISTRAR

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BANARAS HINDU UNIVERSITY
ADMISSION NOTIFICATION (1988-89)

Applications are invited for admission to the following courses :

1. M.A. (Faculty of Social Science-Economics, Sociology, Psychology, History and Political Science).
2. M.A. (Faculty of Arts-all other subjects).
3. M.A. in Linguistics (Faculty of Arts).
4. M.Sc. (Faculty of Science).
5. M.Sc. Tech. (3-Years-Geophysics-Faculty of Science).
6. M.A./M.Sc. (Home Science).
7. M.Com. (Faculty of Commerce).
8. M.Phil. (English / Sociology / History).
9. D. Mus.-2 years in Performance (Vocal/Instrumental/Sitar/Violin).
10. Diploma Courses (3-years (a) Hindustani-Vocal (b) Instrumental-Sitar/Violin/Flute/Tabla (c) Karnatak Instrumental-Violin / Veena (d) Dance-Bharatnatyam/Kathak).

Eligibility Conditions

For 1, 2, 4 & 6 (a) B.A. (Hons.)/B.A. Pass, for M.A. and B.Sc. (Hons.) B.Sc. (Pass) for M.Sc., under 10+2+3 pattern (b) General aggregate 45% (aggregate of all the three years) (c) Minimum of 48% in the major (not minor/subsidiary) in the subject of Admission.

For M.Sc. (Tech.) Geophysics—In addition to (a) and (b) above candidates should have obtained 50% marks in Physics and Mathematics and one more Science subject in B.Sc.

For M.Sc. (Biochemistry) under (4)—Besides Minimum eligibility conditions for M.c. candidates should have chemistry as major (not minor/subsidiary) and any two subjects out of Biochemistry / Botany / Mathematics / Physics/ Physiology and Zoology in B.Sc.

For M.A./M.Sc. (Home Science)—Besides the eligibility conditions candidates should have Home Science as Hons./Major subject in B.A./B.Sc.

For M.A. in Linguistics under (3) – Candidates who have passed any of the following examinations (i) B.A. (3-Yrs.) after 10+2 with postgraduate Advanced Diploma in Linguistics (having six or more papers in the subject) : (ii) B.A. (Hons.) of 10+2+3 pattern in any Language where a paper on Linguistics has been prescribed; (iii) M.A. in any Language with a paper in Linguistics.

For M. Com.—B. Com. (Hons.)/ B.Com. (Pass) under 10+2+3 pattern with a minimum of 48% in aggregates.

For M-Phil—M.A. after 10+2+3 in the respective subject with a minimum of 50% marks.

For D. Mus.—10+2+3 (B. Mus.) plus 2 years M. Mus. of Banaras Hindu University or equivalent examination with 60% in practical.

For 3 years Diploma Courses –Good knowledge of Hindi/English and 10 years age on Ist July, 1988.

Mode of Admission

(i) **For M.A./M.Com./M.Sc./M.Sc. (Tech.)**—On the basis of merit of Acad. index of the qualifying examinations.

(ii) **For M. Phil. Courses**—The respective Deptts. will conduct a Written Test for drawing the merit list for admission, the applicants may note that the written test will be held on 8th Aug. '88 at 11.00 A.M. and they should remain present in the respective department. (No separate intimation for test will be issued to the candidates).

(iii) **For D. Mus. and Diploma Courses in Music**—Through an aptitude test Dates to be announced by the Faculty of Performing Arts, BHU .

Reservation of Seats for SC/ST Candidates :—22.5% SEATS (15% FOR SC & 7.5% FOR SCHEDULED TRIBES) ARE RESERVED FOR SC/ST CANDIDATES.

Application Forms: Application forms and information leaflet are obtainable at the Counters of the respective Faculties (except for M.Phil and D.Mus. Courses in which case application form is obtainable at the Counter of the O.S.D., Publication Cell, BHU on pre-payment of Rs. 2/- (Rs. 5/- in case of M.Phil and D.Mus. Courses) between 11.00 AM to 2.00 P.M. on all working days. Application forms can be had by post from the following on sending a Self-addressed unstamped envelope of 23 Cm. × 15 Cm. size along-with a postal order of Rs. 10/- (Rs. 12/- in case of M.Phil. & D.Mus. courses) in favour of the Officer concerned to whom the request is made for the issue of application form (as given below) and payable at the Malaviyanagar Post Office, B.H.U. :

For M.A. (Economics, Sociology, Psychology History & Political Science)	—Dean, Fy. of Social Scs., BHU
M.A. for other subjects	—Dean, Fy. of Arts, BHU
M.Com.	—Dean, Fy. of Commerce, BHU
M Sc./M.Sc. (Geophysics) and M.A./M.Sc. (Home Science)	—Dean, Fy. of Science, BHU
Three Year Diploma Course in Music/Dance	—Dean, Fy. of Performing Arts, BHU

	in respect of	
LAST DATE FOR	Faculty of Performing Arts and Commerce	Faculty of Arts, Social Sc. & Science
Postal requests for application forms	9.7.1988	16.7.1988
Sale at the Counter	26.7.1988	1.8.1988
Receipt of duly completed application forms	29.7.1988	4.8.1988

APPLICATIONS RECEIVED AFTER THE LAST DATE EVEN BY POST SHALL NOT BE CONSIDERED. SEPARATE APPLICATION BE MADE FOR EACH COURSE. APPLICATION FORMS ARE NOT TRANSFERABLE. INCOMPLETE ADMISSION FORMS WILL BE REJECTED.

REGISTRAR

CENTRAL BOARD OF RECRUITMENT
(Kendriya Chayan Parishad)
BANARAS HINDU UNIVERSITY
VARANASI-221005

Adv. No. CBR/88

Last Date : 22-8-1988

Abbreviations : E.Q. Essential Qualifications,
D.Q. Desirable Qualifications.

Applications are invited for the following posts in the Banaras Hindu University.

The posts carry the benefits of Provident Fund, Pension and Dearness, House Rent and City Compensatory Allowances as admissible under the University rules.

THE AGE OF superannuation is FIFTY-EIGHT years.

AGE LIMIT is relaxable by 5 years in case of SC/ST candidates.

15% of the posts are reserved for Scheduled Castes and 7.5% for Scheduled Tribes provided suitable candidates are available.

THE DESIGNATIONS and/or Payscales may be changed as per requirements of the University, Number of vacancies may increase/decrease than advertised and panels may be drawn for immediate vacancies.

THE PRESCRIBED QUALIFICATIONS or their equivalents must be from recognised institutions.

Prescribed application forms and other details may be had by sending a Rs. 2/- stamped self-addressed env. (20×10 cm) alongwith postal order of Rs. 5/- (Re. 1/- for SC/ST) in favour of Registrar, Banaras Hindu University or Bank Draft payable at the B.H.U. Branch of the State Bank of India. One application form will be provided against each stamped env. Excess amount of P.O./B.D. will neither be refunded nor adjusted in any way.

The last date for receiving applications by post, in person, and from applicants residing abroad (through proper channel) is **22-8-1988.**

The address both for obtaining and submitting the application forms is :

The Registrar,
Central Board of Recruitment,
Banaras Hindu University,
Varanasi-221-005.

188/1 **Thirty Staff Nurses** (S.S. Hospital) for drawing a panel (23 General + 5 SC + 2 ST).

Grade : Rs. 1400-2600

Age Limit : 35 years (General)
40 years (Ex-Army)

E.Q. : 1. Matriculate with good knowledge of Hindi and English.

2. Qualified 'A' Grade Nurse with three years training in general nursing and six months of training in mid-wifery or special training in lieu thereof and registered with Nursing Council of India.

D.Q. : Ability to maintain stock Register, etc.

188/2 **One Biofeedback Therapist** (Prakriti-Sthapana Yuktinjna) (Deptt. of Basic Principles, Faculty of Ayurveda).

Grade : Rs. 1640-2900

Age Limit : 40 years

E.Q. : 1. Good IInd Class Master's Degree in Humanities/Social Sciences.

2. Knowledge of Ayurvedic Deha-Manas Prakriti Vigyan.

3. Five years experience of Dhatu Samya Therapy by Bio-feedback Procedure as per fundamentals of Ayurveda.

D.Q. : 1. Research Publications related to Ayurveda Kriya Sharira.

2. Experience of conducting Deha-Manas Prakriti Parikshna.

188/3 **One Punch Karma Therapist** (Deptt. of Kayachikitsa, Faculty of Ayurveda).

Grade : Rs. 1640-2900

Age Limit : 40 years

E.Q. : D.Ay.M./M.D. (Ay.)-Kayachikitsa with specialisaion in Punch Karma or special training in Punch Karma.

OR

A.M.S./A. B.M.S with Specialisation in Punch Karma.

OR

Graduate of Science with Diploma in Physio-therapy.

D.Q. : Two years Professional experience.

188/4 **One Statistical Assistant** (School of Bio-medical Engg.)

Grade : Rs. 1400-2300

Age Limit : 35 years

E.Q. : Good IInd Class Master Degree in Mathematics/Statistics with atleast six months experience of Statistical work.

OR

B.A./B.Sc. with Mathematics/Statistics as one of the subjects with three years experience of Statistical work.

D.Q. : Experience of having worked in Statistical Section of Research/Medical Institution.

188/5 **One Livestock Farm Manager** (Deptt. of A.H. & Dairying) Instt. of Agricultural Sciences.

Grade : Rs. 2000-3500

Age Limit : 35 years

E.Q. : 1. Bachelor or Veterinary Science and Animal Husbandary.

2. One year experience in livestock production and poultry management.

D.Q. : Master of Veterinary Science/M.Sc. (Agriculture) Animal Husbandary and Dairying with teaching and research in the subject.

188/6 **One Film Projector/Public Address System Operator** (Swatantrata Bhavan)

Grade : Rs. 1400-2300

Age Limit : 35 years

E.Q. : 1. Pre-University/Intermediate/10+2 in Science stream.

2. I.T.I. Trade Certificate/Diploma in Cinematography.

3. Must have a cinematography permit licence issued by District Authority.

4. Must have at least 5 years experience as mm projector operator in a reputed theatre.

D.Q. : 1. Working knowledge / Experience in handling sound/public address system of all kinds.

2. A good working knowledge of English.

3. Graduate.

188/7 **One Editorial Staff Gr. III** (Jyotish Panchang Vibhag).

Grade : Rs. 1640-1900

Age Limit : 35 years

E.Q. : 1. Jyotishacharya (Ganit and Falit) in First Class.

2. Three years experience of Panchang Editing in an Institution.

D.Q. : 1. Applied knowledge of Dharamshastra.

2. Editing and research work in related subject.

3. Applied knowledge of proof reading.

188/8 **One Assistant Curator** (Reserved for SC) (Bharat Kala Bhavan)

Grade : Rs. 1640-2900

Age Limit : 45 years (for SC candidate with relaxation)

E.Q. : 1. Atleast IInd Class M.A. in History of Art/A.I.H.C. and Arch.

2. M.A. in museology or two years Diploma in Museology/ Archaeology (relaxable in case of Ph.D.).

D.Q. : 1. Research and publication experience and/or two years experience of working in a Museum of repute.

2. Knowledge of Urdu/Persian/ Arabic.

188/9 **One Assistant Curator** (NUMISMATICS) (Bharat Kala Bhavan)

Grade : Rs. 1640-2900

Age Limit : Rs. 40 years

E.Q. : 1. Atleast IInd Class M.A. in History of Art/A.I.H.C. and Arch.

2. M.A. in Museology or two years Diploma in Museology/Archaeology/ (relaxable in case of Ph.D.)

D-Q. : 1. Research and Publication experience and/or two years experience of working in a Museum of repute.

2. Specialisation in Numismatics/ Epigraphy.

188/10 **One Technical Assistant :** (Deptt. of Pharmaceutics)

Grade : Rs. 1400-2300

Age Limit : 35 years

E.Q. : Graduate in Science with 3 years experience in handling sophisticated pharmaceutical instruments.

D.Q. : Diploma in Spectroscopy.

188/11 **Two Chair Recaners** (Reserved for blind) (University Works Deptt.)

Grade : Rs. 750-940

Age Limit : 27 years

E.Q. : 1. Class VIII passed

2. Three years experience of Chair recanning.

188/12 **One Tabla Accompanist** (Reserved for Scheduled Caste)

Grade : Rs. 1200-2040

Age Limit : 40 years (for Scheduled Caste)

E.Q. : 1. A good performance with proficiency in Tabla.

2. Experience as Accompanist in Music, Conferences, Redio etc. with Vocal/Instrumental Music.

D.Q. : Matriculate with knowledge of Tabla Theory and experience of teaching in Tabla playing.

188/13 **One Artist** (Bharat Kala Bhavan)

Grade : Rs. 1640-2900

Age Limit : 35 years

E.Q. : 1. B.F.A. or a Diploma in Arts

2. Knowledge in the techniques of traditional Indian Painting viz-Rajasthani, Pahari and Mugal Paintings.

3. Three years experience of working in an Art and Archaeological Museum as an Artist.

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INDIAN INSTITUTE OF TECHNOLOGY

MADRAS

Advertisement No. IITM/R/4/88

Invites applications for the following Posts:

1. **Deputy Registrar**
2. **Finance & Accounts Officer**
3. **Estate Officer**

Scale of Pay: Rs. 1200-50-1300-60-1900 (likely to be revised) Gross emoluments on the minimum of the scale of pay: Rs. 3075/-

Deputy Registrar

Qualification

1. A good Bachelor's degree in Arts, Science, Commerce, Engineering or Technology of a recognised University.
2. A post graduate degree or diploma in any of the above fields or in Public Administration/Management of a recognised Institute/University or its equivalent.

Experience

A minimum of 10 years of relevant administrative experience preferably in a Government, Educational or Research Institute or in a commercial organisation of national standing. Out of this atleast 5 years should be in a responsible position (in the pre-revised pay scale of Rs. 700-1300/700-1600). The candidates would be expected to have some familiarity with academic activities and working procedures in higher educational institution.

Desirable

1. Teaching and research experience or experience of life in a residential educational centre.
2. Experience of Computer Systems for Information processing and retrieving.

Candidates who are not found fit for the post of Deputy Registrar may be considered for the lower post of Asst. Registrar at the discretion of the Institute.

Finance & Account Officer

Qualification

1. A good Bachelor's degree in Arts, Science, or Commerce of a recognised University.
2. A postgraduate degree or diploma in Commerce of a recognised Institute/University or its equivalent or recognised qualification as Chartered Accountant/Cost Accountant.

Experience

A minimum of 10 years of relevant Accounts experience in a Government, Educational or Research Institute or a Commercial Organisation of national standing. Out of this at least 5 years should be in a responsible position (in the pre-revised scale of pay of Rs. 700-1300/700-1600). The candidates would be expected to have some familiarity with academic activities, working procedures, budget preparation etc., in higher educational Institute. The candidates must be conversant with Govt. of India rules such as Fundamental Rules & Supplementary Rules, General Financial Rules, Treasury Rules, Accounts Code, Civil Service Regulation etc.

Desirable

1. Experience of life on a residential campus.
2. Experience of Computer Systems for information processing and retrieval.

Estate Officer

Qualification

A good Bachelor's degree in Civil Engineering of a recognised University.

Experience

A minimum of 10 years experience in maintenance of residential, instructional buildings in a Government educational or research Institute or other organisations of national standing. Out of this 5-6 years should be in a responsible position (in the pre-revised scale of pay of Rs. 650-1200 or Rs. 700-1600). The candidates would be expected to have familiarity with estate rules regarding licensing of quarters, public premises, operation and maintenance of water supply, sewage disposal system and other estate properties of a large residential educational campus. The estate officer is entitled for licence fee free unfurnished accommodation in the campus.

One post of Deputy Registrar and the Post of Estate Officer is reserved for SC/ST candidates.

Age limit: Maximum 52 years for all posts.

General Information / Conditions/ Instructions

(i) For all posts, where Post graduate qualification is prescribed, experience means experience gained after Master's degree.

(ii) The prescribed qualifications are minimum and the mere fact that a candidate possesses the same will not entitle him/her for being called for interview.

(iii) The Institute reserves the right to restrict the number of candidates for interview to a reasonable limit on the basis of qualifications and experience higher than the minimum prescribed in the advertisement.

(iv) The Institute also reserves the right of rejecting any or all applications without assigning any reasons therefor.

For application form, please address the REGISTRAR, INDIAN INSTITUTE OF TECHNOLOGY, MADRAS 600 036 with a self addressed stamped (Re. 1.00) envelope (26 cm x 11 cm). Applicants are requested to indicate clearly the post and discipline for which they wish to be considered. Persons in the service of Government establishments and Public Sector Undertakings should apply through proper channel. Completed applications with a crossed non-refundable current Indian Postal Order of the value of Rs. 7.50 (Re. 1.90 for SC/ST candidates) drawn in favour of the Institute payable at IIT, Madras P.O., should be sent to the Registrar of the Institute.

The last date for the receipt of completed applications is **20-07-1988**.

REGISTRAR

MAHARSHI DAYANAND UNIVERSITY
ROHTAK

CORRIGENDUM

Adv. No. 3/88

It is notified for the information of all concerned that qualifications for the post of Assistant Director (Adult Education) (Rs. 1200-50-1300-60-1900 (UGC) already published vide Advertisement No. 3/88 in the issue dated 20.6.88 be substituted as under :

Assistant Director

(a) Essential

(i) Good academic record in the subject of Adult/Continuing Community/Extension Education/Community Development from a recognised Indian University or an equivalent degree from a foreign University.

(ii) M. Phil, or Ph.D in a subject related to adult learning or Ph.D. in a subject under social sciences or Education/Evidence of published learning materials and learning resources on areas listed in (i) above or published research in any of the relevant area/areas indicated above.

OR

(i) Good academic record in the subject of Social Sciences/Social Work / Humanities / Education/ Sciences/Home Science.

(ii) Post Master's diploma in Adult & Continuing Education from a recognised Indian University or an equivalent diploma/degree from a foreign University.

(iii) M.Phil. or a Ph.D. in a subject related to adult learning or a Ph.D. in a subject under Social Sciences or Education or Evidence of published learning materials and learning resources in adult/continuing/community/ extension education/community development or published research in any of these area/areas.

EXPLANATION

For determining "good academic record" the following criteria shall be adopted :

(i) A candidate holding a Ph.D./ M.Phil. degree should possess atleast a second class Master's degree; or

(ii) A candidate without a Ph D. degree should possess a high second class Master's degree and second class in the Bachelor's degree; or

(iii) A candidate not possessing Ph. D. degree but possessing second class Master's degree should have obtained first class in the Bachelor's degree.

b. About five years experience of field work/teaching or research in a subject having bearing on Adult/Continuing Extension / Community / Non-

Formal Education or Community Development. This condition may be relaxed on the recommendation of the Selection Committee.

REGISTRAR

BANASTHALI VIDYAPITH

DEEMED TO BE UNIVERSITY

National Institution for Education of Women

REQUIRES

Lecturers Political Science 1
Statistics 1 Perm.
Music Vocal 1 Temp.

Qualifications As per UGC guidelines

Pay Scale : 2200-75-2800-100-4000.

Dearness Allowance, Contributory Provident Fund Gratuity Cum Insurance as per Vidyapith Rules. Residential Accommodation at Subsidized Rates.

Notes (1) Employees must become habitual wearer of KHADI on appointment.

(2) Selection Committee may recommend higher start in exceptional cases on merit.

(3) The Vidyapith reserves the right to fill/not to fill any post advertised.

(4) Preference to women candidates.

(5) II class return rail fare shortest route to persons appearing at interview.

Applications on prescribed forms must reach Secretary, Banasthali Vidyapith, P.O. Banasthali Vidyapith (Rajasthan) 304022 within 30 days of the advertisement. Forms can be obtained by sending self addressed stamped envelope of 16×23 Cm. size with Rs. 4.20 stamps or Rs. 9.20 stamps for registered post in favour of Banasthali Vidyapith. No. 6/88.

BANASTHALI VIDYAPITH

DEEMED TO BE UNIVERSITY

National Institution for Education of Women

INVITES applications for the following:

1. **Department of Education**

   (a) **Instructor—1.** to teach Drawing and Painting to B.Ed. classes. II M.A. Drawing and Painting or 5 years Diploma in Fine Arts B.Ed. desirable.

   (b) **Computer Technician—1.** II M.C.A. or B.Sc. I/High II with Diploma in Computer Science (D.C.A.) or I B.Sc. with Computer Science (3 years Degree Course).

   (c) **Educational Technology Technician—1.** I/High II post B.Sc. Diploma in Electronics/T.V. Technology or I.T.I. Trained Technician (Electronics / T.V. Technology) with 2 years practical experience.

2. **Department of Computer Science**

   Technical Assistant--1. II M.C.A. or B.Sc I/High II with Diploma in Computer Science (D.C.A.) or I B.Sc. with Computer Science (3 years Degree Course).

3. **Department of Electronics**

   Technical Assistant—1. I/High II Post B.Sc. Diploma in Electronics or I.T.I Trained Technician with 2 years practical experience.

   B.E. (Electronics) preferred.

4. **Department of Textile Designing**

   Assistant Lecturers—2 I/High II Graduation with 3 years Diploma in Textile Designing / Technology (Specialization Printing/Weaving).

Pay Scale : (all above post in 1 to 4) 1490-30-1640-40-2000-50-2300-60 - 2600-75-3050.

(present initial emoluments Rs. 1684.00).

5. **Central Library**

   Sr. Technical Assistant--1. II M.A./M.Sc./M.Com. with II B.Lib.Sc. OR II B.A./B.Sc./B.Com. with II B.Lib. with 4 years experience.

Pay Scale : 1400-30-1640-40-2000-50-2300-60-2600-75-2900.

(present initial emoluments Rs. 1582.00)

6. **Laboratory Assistants—5.**

   (Biology, Computer Science, Electronics, Home Science, B.Ed.)

   II B.Sc. Biology, II B.Sc. Maths, II B.Sc., Home Science, II B.Sc. with Diploma/Certificate in Computer Science/Electronics.

Pay Scale : 880-15-1000-20-1200-25-1400-30-1640-40-1680.

(present initial emoluments Rs. 994.00 p.m.)

Dearness Allowance, Contributory Provident Fund, Gratuity Cum Insurance as per Vidyapith Rules. Residential Accommodation at Subsidized Rates.

Notes : (1) Employees must become habitual wearer of KHADI on appointment.

(2) Vidyapith reserves the right to reduce or increase the number of vacancies or not to fill up any post advertised.

(3) Preference to women candidates.

(4) II class return rail fare shortest route payable to persons appearing at interview for post at 1 to 5.

Applications on prescribed application forms (seven copies) for posts at 1 to 5 and on plain papers for posts at No. 6 with necessary supportings (Age certificate, attested copies of mark-lists) must reach Secretary, Banasthali Vidyapith, P.O. Banasthali Vidyapith (Rajasthan) 304022 within 30 days of the advertisement. Form can be obtained by sending self addressed stamped envelope of 16×23 Cm. size with Rs. 4.20 stamps. Rs. 9.20 stamps for registered post in favour of Banasthali Vidyapith. No. 7/88.

INDIAN INSTITUTE OF CHEMICAL BIOLOGY

(COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH)

4, RAJA S.C. MULLICK ROAD,
JADAVPUR,
CALCUTTA - 700 032

Advertisement No : 1/88

Applications are invited from the Indian Citizens for the following posts :

(I) Scientist-EI, One post, Scale Rs. 3700-125-4700-150-5000/-

Qualification High Academic qualification with Ph.D. degree in Chemistry with atleast ten years' experience in the Chemistry of Marine Natural Products as evidenced by publication in reputed journals.

Job requirement The selected candidates will be required to provide leadership and to plan, guide and execute research projects in the area of marine natural products and guide a group of Scientists working in this area.

(II) Scientist - B/C Two posts, Scale Rs. 2200-75-2800-EB-100-4000/- / Rs. 3000-100-3500-125-4500/-

Qualification M.Sc. 1st Class and preferably Ph. D. degree in Chemistry/Biochemistry with atleast 5 years research experience in the specified field.

Post (i) Desirable Knowledge in neuropharmacology, neuro-immunology and modern biological techniques.

Job requirement To work on neuroreceptors and their function in the central nervous system and to assist in the planning and execution of research projects in this area.

Post (ii) Desirable Experience in Microbial Transformation and chemical ecology and use of all modern physical methods as applied to marine natural products.

Job requirement—To carry out isolation, purification and characterization of marine and estuarine natural products, particularly lipids and to develop methodologies.

(III) Scientist B : Five posts, Scale Rs. 2200-75-2800-EB-100-4000/-

Qualification M.Sc. 1st Class degree in Biochemistry/Chemistry/Physiology/Zoology and atleast three years research experience with published papers in leading international journals, Ph.D. preferred.

Desirable Good exposure to modern methods/techniques in the relevant field in a reputed laboratory.

Job requirement

Post (i) (Reserved for ST candidate, General candidate may also apply)

To work on problems related to regulation of gene expression in higher plants, experience in recombinant DN technique being essential.

Post (ii) (Reserved for ST candidate, General candidate may also apply)

To work on the chemistry of natural products and application of modern physical methods in organic chemistry.

Post (iii) (Reserved for SC candidate, General candidate may also apply)

To work on Computer application to organic chemistry.

Post (iv) To work in the field of lipids in biological membrane specially in relation to isolation and mode of action of hormone.

Post (v) (Reserved for SC candidate, General candidate may also apply)

To work on synthetic organic chemistry and applied oriented natural products.

(IV) Technical Officer - B, Two posts, Scale Rs. 2200-75-2800-EB-100-4000/-

Post (i) (Reserved for SC, General candidate may also apply)

Qualification M.Sc. 1st Class in Chemistry/Biochemistry with at least three years research experience in a reputed laboratory. Ph.D. preferred.

Desirable Knowledge of handling, storage and disposal of radioactive materials.

Job requirement To carry on Radiolabelling of organic compounds, radio analysis and biodistribution studies. To assist the Project Leader in the management and supervision of radioactive materials and related matters.

Post (ii) Qualification A graduate with recognised Degree/Diploma of Library/Information Science. Atleast ten years experience in a reputed Scientific library.

Desirable Thorough knowledge in arranging and binding scientific journals/periodicals including Accessioning.

Job requirement The selected candidate will be required to independently handle subscription to foreign journals directly, reference queries survey literature and compile bibliographies for the research scientists.

(V) Technical Assistant, Gr-III (1) (Reserved for ST candidates) 2 posts, Scale Rs. 1400-40-1800-EB-50-2300/-

Qualification B.Sc. with Chemistry/Physiology/Zoology/Physics as one of the subjects.

Job requirement To work on culture and maintenance of parasites/routine work of a biochemical/chemical laboratory and the job as may be assigned from time to time by the Project Leader.

General Conditions

1. The posts are temporary but likely to continue and carry usual allowances as admissible to Central Government employees stationed at Calcutta. The posts of Scientist-EI, B/C, and Technical Officer-B are contractual in the first instance for six years but also carry option for pensionable benefits when the posts become permanent. Higher initial start may be given to the deserving candidates. Qualifications relaxed in the case of candidate otherwise well qualified and considered suitable for the posts.

2. The name of post applied for and its serial number as appeared in the advertisement must be clearly indicated in the application form. Candidates applying for more than one post should send separate application for each post.

3. The present emoluments at the minimum of the scale is as follows:

Scale of Pay	Emoluments
Rs. 3700-5,000/-	Rs. 5,030.00
Rs. 3000-4500/-	Rs. 4,240.00
Rs. 2200-4000/-	Rs. 3,146.00
Rs. 1400-2300/-	Rs. 1,947.00

4. Canvassing in any form and/or bringing in any influence political or otherwise will be treated as a disqualification for the post.

5. Applications must be on forms which together with detailed instructions are obtainable from the Administrative Officer, Indian Institute of Chemical Biology, 4, Raja S.C. Mullick Road, Jadavpur, Calcutta-700032 by sending a self-addressed 90 paise stamped envelope

of 24 x 10 c.m. size. Number of advertisement, name of the post applied for and full address in block letters must be indicated at the top of the request to be made by **8.7.1988** for obtaining application forms. Complete applications on the prescribed forms together with an application fee of Rs. 8/- (no application fee in case of **SC/ST candidates)** in the form of crossed Indian Postal Order payable in favour of the Indian Institute of Chemical Biology, Calcutta-32 should reach by **22.7.1988.**

6. Interim Enquiries will not be entertained.

JAMIA MILLIA ISLAMIA

JAMIA NAGAR, NEW DELHI-110025

ADMISSION NOTICE

No. 2/1988-89

Admissions are open to the following Courses for the academic year 1988-89.

A. Faculty of Humanities & Languages, Faculty of Social Sciences and Faculty of Natural Sciences:

(1) Ph.D.: Arabic, English, Hindi, History, Islamic Studies, Persian, Urdu, Economics, Political Science, Social Work, Sociology, Psychology, Commerce, Physics, Chemistry, Mathematics with Computer Science, Geography and Bio-Sciences. (2) M.A.: Arabic, Economics, English, Geography, Hindi, History, Islamic Studies, Persian, Political Science, Social Work, Sociology and Urdu. (3) M.Sc.: Physics (Material), Chemistry (Material), Mathematics with Computer Science, Bio-Sciences and Geography. (4) Postgraduate Diploma in Cartography, (5) B.A. (Hons): Arabic, Economics, English, Geography, Hindi, History, Islamic Studies, Mathematics, Persian, Political Science, Psychology, Social Work, Sociology and Urdu. (6) B.Sc. (Hons.): Physics, Chemistry, Mathematics and Geography. (7) B.Com. (Hons.). (8) B.A. (Pass). (9) B.Sc. (Pass). (10) Advanced Diploma in Modern Arabic (Evening Course). (11) Diploma in Modern Arabic (Evening Course). (12) Certificate in Modern Arabic (Evening Course) (13) Diploma in Urdu Language Proficiency (for foreign students only).

B. Faculty of Education

(1) Ph.D. (2) M. Phil. (3) M.Ed. (Full-time and Part-Time). (4) M.A. (Educational Planning and Administration). (5) M.A. (Education) (6) Master of Fine Arts (M.F.A.). (7) Advanced Diploma in Special Education. (8) B.Ed. (9) Bachelor of Fine Arts (B.F.A.) (10) B.A. (Hons.) in Art & Art Education. (11) Diploma in Basic Training.

C. Faculty of Engineering and Technology

(1) B.Sc. Engineering (Civil, Electrical and Mechanical). (2) B.E. (Civil) Evening Course. (3) Diploma in: (i) Civil Engineering and (ii) Electronics. (4) Certificate in: (i) Draughtsmanship (Mech.), (ii) Electronics and (iii) Refrigeration and Air-Conditioning.

Mass Communication Research Centre

(1) Ph.D. (2) Master's Degree in Mass Communication (Radio, Television and Film), (3) Diploma in Science Journalism.

E. Dr. Zakir Husain Library

Bachelor of Library and Information Science (Evening Course).

F. Correspondence Course in Urdu (through the medium of Hindi and English).

G. Prospectuses with Admission forms can be had from M/s Maktaba Jamia Ltd., Near Faculty of Education Campus, Jamia Nagar, New Delhi-110025 on all working days between 9.30 a.m. and 1.30 p.m. on cash payment of Rs. 8/- for all Faculties (Combined) and B. Lib. & Information Science Course or by Post by sending a Crossed Indian Postal Order of Rs. 10/- for Ordinary Post (U.P.C.), and Rs. 16/- for Registered Post for Faculties (Combined), Payable to M/s Maktaba Jamia Ltd., New Delhi, alongwith a self-addressed envelope of 18x25 cms. size. In order to save time the candidates, desirous of obtaining the Prospectuses with Admission Forms by post, are advised to write immediately to the Maktaba Jamia Ltd.

H. Prospectuses with Admission Forms for all Faculties and B. Lib. & Information Science Course are Available.

I. Last Dates (Upto 4.00 p.m.) for receiving the complete Admission Forms for various Courses are as follows:

(1) Ph.D. (for the Faculties): A **copy of the Ph.D. Regulation with Application Form** can be had from the Registrar's Office (Jamia) on cash payment of Rs. 5/- or by post by sending a Crossed Indian Postal Order of Rs. 6/- **payable to Jamia Millia Islamia, New Delhi** alonwith a self-addressed envelope of 18x25 cms. size. At present candidates may apply for admission three times in the year, namely, by 20th August, 20th December and 20th April (2) The Aforesaid Three Faculties (under A above): (i) M.A./M.Sc. (Previous)—19.7.88, (ii) B.A./B.Sc./B.Com. (Hons.), I year—11.7.88, (iii) B.A./B.Sc. (Pass), I year—15.7.88. (iv) Diploma and Certificate Courses—1.8.88. (2) Faculty of Education: (i) M. Phil.—5.8.88. (ii) M.Ed.—13.7.88 (iii) M.A. (Educational Planning and Administration)—20.7.88 (iv) M.F.A./B.F.A./B.A. (Hons.) in Art & Art Education—11.7.88 (v) M.A. (Education)/Advanced Diploma in Special Education—4.8.88. (vi) B.Ed./ Diploma in Basic Training—15.7.88. (4) Faculty of Engineering and Technology: B.Sc. Engineering (Civil, Electrical & Mechanical)/B.E. (Civil) Evening/ Diploma/Certificate Courses—15.7.88. (5) Mass Communication Research Centre: (i) Ph. D. (ii) M.A. in Mass Communication—25.6.88. A separate Prospectus for the Courses offered by Mass Communication Research Centre will be available from the Office of the above Centre during office hours. (6) Dr. Zakir Husain Library: Bachelor of Library and Information Science (Evening Course)—11.7.88.

J. Candidates seeking admission to the courses of the Faculty of Education and the Faculty of Engineering and Technology must enclose alongwith their Application Forms a Bank Draft for the amount noted against each Course below, drawn in favour of the Jamia Millia Islamia, New Delhi, payable on any Bank in Delhi/New Delhi, as Registration and Admission Test Fee (Non-Refundable). Postal Order/Money Order/Cash etc. are not Acceptable.

(1) Faculty of Education: (i) B.Ed. Rs. 50/- and (ii) Diploma in Basic Training—Rs. 50/-.

(2) Faculty of Engineering and Technology: (i) B.Sc. Engg. Rs. 60/-, (ii) B.E. (Civil)—Rs. 60/- and (iii) Diploma Courses—Rs 50/-.

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For further information

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VIKRAM SARABHAI SPACE CENTRE, TRIVANDRUM

ISRO VISITING FELLOWSHIPS

ADVERTISEMENT No. VSSC-110

Vikram Sarabhai Space Centre, Trivandrum, of the Department of Space, Indian Space Research Organisation, invites applications for ISRO Visiting Fellowships, tenable at the Space Physics Laboratory, VSSC, from young scientists below the age of 25 years possessing a First Class Post Graduate Degree in Physics/Applied Physics/Physical Engineering/Meteorology. Only such students who passed or expect to pass their post-graduate degree in 1988 need apply. Students who expect to complete their M.Sc./M.Tech. final examinations before the end of August, 1988, can also apply, stating clearly the expected dates of the examination and the expected date of publication of the result. The selected candidates should have passed the M.Sc./M.Tech. in first class by the time of joining. Selection is based on the performance in a written examination and an interview for those candidates who pass the written test. The examination will test the depth of understanding of physics concepts and the ability to apply them to solve scientific problems. The test and interview are likely to take place over a period of 2 days around the last week of August, 1988 in VSSC, Trivandrum. At the Space Physics Laboratory, opportunities for experimental and theoretical research work on the Space environment of the Earth are available in the following areas;

(i) Electrodynamics of the Ionosphere—Magnetosphere system; (ii) Large scale dynamics and wave motions in the Troposphere, Stratosphere, Mesosphere and Thermosphere; (iii) Atmospheric Aerosols (and minor constituents) and their role in the scattering, Absorption and Transmission of Radiation in the atmosphere; (iv) Physics of the Atmospheric Boundary Layer.

Experimental facilities in SPL include Laser Systems, VHF Radars, Acoustic Radar and Solar Radiometers for studies on the Earth's atmosphere. Selected candidates will be working under the general guidance of experienced Scientists and Engineers in SPL and they are encouraged to register and complete their Ph.D. during the tenure of their Fellowships (only such persons who have strong aptitude and motivation for research need apply).

The Fellowships are granted initially for a period of one year and carry an amount of Rs. 1,000/- per month and a contingent grant of Rs. 3,000/- per year. M.E./M. Tech. Degree holders are eligible for a monthly stipend of Rs. 1,200/-. ISRO may renew the Fellowships annually for another two years subject to the total period of the Fellowships not exceeding a period of three years. For M.Sc. degree holders at the end of two years, if after assessment, the work of the Visiting Fellow is found to be satisfactory, the amount may be raised to Rs. 1,200/- per month. Fellowships amount are likely to be revised soon to make them on per with those of C.S.I.R./U.G.C. Applications should be sent on a plain paper (to be neatly hand-written or typed in A-4 size paper—210× 297 mm) alongwith a recent passport size photograph, giving the following details :

1. Post Applied for 2. Advertisement Number 3. Name in full (In block letters) 4. Date of Birth 5. Nationality 6. Father's/Husband's name 7. Address for correspondence (In block letters) 8. Permanent address 9. Educational/Professional qualifications (indicating clearly the examinations passed/Course Undergoing, expected dates of examination result, University/Board, Year of Passing, Class and Percentage of Marks, Subjects taken). Percentage marks for all the semesters completed so far are to be given 10. Details of previous/present employment held or Research/Training experience if any, in chronological order starting from present position backwards (indicating the name of employer with full address, post held, salary drawn. period of service, nature of duties. 11. If your replies to (9) to (10) do not cover all the period from School leaving till date, briefly state how you spent the uncovered period. 12. If selected, minimum time required to join the Fellowship. 13. Any other relevant information including references. 14. Whether applied for any post in ISRO/DOS before ? (If so, the details such as name of the Centre, Advertisement No., Post No., Name of Post, Date of interview, Result of interview, etc. may be furnished). 15. Major Scientific/Technical field(s) of interest : Give details of independent research work (if any). List of Publications (if any).

I affirm that information gived in this application is true and correct. I also fully understand that if at any stage it is discovered that any attempt has been made by me to wilfully conceal or mis-represent the facts, my candidature may be summarily rejected or my employment terminated.

17. Signature of the candidate with date.

General Conditions : (a) Candidates will have to produce proof of the details furnished in their applications as and when required. (b) Applications which do not give full details asked for and those received after the due date will not be considered. (c) Outstation candidates called for the interview will be paid to and fro second class railway fare by the shortest route on production of proof of journey such as railway tickets/ticket number. (d) Applications, completed in all respects, should reach the **Senior Administrative Officer, Recruitment, Vikram Sarabhai Space Centre, Trivandrum-695 022 within 15 days** of release of this advertisement. The applications should be sent in a cover superscribed "Application for the award of ISRO Visiting Fellowships". (e) Only Indian Nationals need apply. (f) No interim correspondence will be entertained. (g) Canvassing in any form will be a disqualification.

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